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U.S. DEPARTMENT OF DEFENSE PROGRAM

BASE REALIGNMENT AND CLOSURE

ORDNANCE, AMMUNITION AND EXPLOSIVES

**FINAL**

**ARCHIVES SEARCH REPORT**

**FINDINGS**

**CAMP BONNEVILLE**

CLARK COUNTY, WASHINGTON

JULY 1997

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## **REPORT PLATES (UNDER SEPARATE COVER)**

## **1.0 INTRODUCTION**

### **1.1 AUTHORITY**

Since 1988, Congress has enacted legislation providing for the closure, in part or in whole, of military bases/facilities and the realignment of others. The principal mechanism for implementing the policy in both statutes has been an independent, bipartisan commission. Two of the most pressing issues are (1) providing assistance to local communities economically impacted by base closures and (2) establishing a cost-effective program of environmental clean-up at bases prior to their disposition.

During the decade of the 1980's, no major military bases were closed, largely because of procedural requirements established by Congress. After several legislative efforts to break the deadlock failed, Congress introduced a new base closure procedure in Public Law (PL) 100-526, enacted October 24, 1988. The statute established a bipartisan commission to make recommendations to Congress and the Secretary of Defense on closures and realignments.

On December 28, 1988, the commission issued its report, recommending closure of eighty-six installations, partial closure of five, and realignment of fifty-four others. The Secretary of Defense approved its recommendation on January 5, 1989. Since the commission approach adopted by Congress was successful, new base closure legislation was introduced (PL 101-510) which also relied upon the services of an independent commission. This commission, in accordance with a statutory provision, met in 1991, 1993 and 1995.

The Defense Base Closure and Realignment of 1990 (1990 Base Closure Act), Public Law 101-510, established the process by which DoD installations would be closed and/or realigned. Camp Bonneville, located in Clark County, Washington, was selected for closure under the 1995 Base Realignment and Closure (BRAC) process.

On April 5, 1990, U.S. Army Engineering and Support Center, Huntsville (USAESCH) was designated as the USACE Mandatory Center of Expertise (MCX) and Design Center for Ordnance and Explosives (OE). USAESCH will also design and implement OE remediation programs for other branches of the Department of Defense when requested. In cooperation with the Support Center and the Seattle District, the U.S. Army Corps of Engineers St. Louis District has been assigned the task of preparing an Archives Search Report for Camp Bonneville, Washington, detailing ordnance, ammunition, and explosives, suspected chemical warfare materials (CWM) and any other warfare materials (i.e. radiological, biological).

## **1.2 SCOPE**

The history of Camp Bonneville was investigated through archives searches for the types, quantities, and probable locations of ordnance items abandoned by DoD prior to relinquishing ownership of Camp Bonneville. Information contained herein is based on the review of existing historical documents and maps, interviews, site inspection, and descriptions of known or suspected contamination.

## **2.0 SITE DESCRIPTION**

### **2.1 LAND USAGE/REAL ESTATE**

Camp Bonneville has been the location of many different types of training in the last eighty-five years. The post has had rifle, pistol, and machine gun training. Soldiers have fired rifle grenades, mortars, howitzers, and rockets, and they have thrown practice and live grenades. They have negotiated both a bayonet and an infiltration course. The camp also had two demolition areas for the destruction of unserviceable munitions and other Explosive Ordnance Disposal (EOD) training. Chemical warfare training also occurred at the post's gas chamber and in its mustard training area (location unknown). Active Army units, Reservists, National Guard members, and the Air Force, as well as many federal, state, and local law enforcement units, used the camp for training. Other civic and educational organizations also used the land at Bonneville (Woodward-Clyde 1996a: Section 3.2; Hoaleben 1947: 731). All of this activity will be covered in more detail later in this report.

In 1910 the federal government acquired a lease with a purchase option on the land near Proebstel, Washington, which would eventually become Camp Bonneville. The army used the site as a rifle range until 1915 when the lease expired, and the army moved their training to Oregon. In 1918, the War Department returned to the Proebstel land (3018.94 acres), acquiring it by purchase and condemnation (Van Arsdol 1991: 87,90,96; War Department 1937). In the early 1950's, the Defense Department leased an additional 840 acres from the State of Washington. In 1957, the federal government returned twenty acres of this property, but the remaining acreage continues to be under the military's jurisdiction (General Services Administration 1953; Woodward-Clyde 1996a: Section 3.2).

### **2.2 CLIMATIC DATA**

The Cascade range provides a steep slope for the orographic lift of moisture-laden westerly winds and consequent moderate rainfall. The Cascade range forms a barrier from continental air masses originating over the interior Columbia Basin. Summer produces pleasantly mild temperatures, northwesterly winds and very little precipitation. July and August are the hottest months with average monthly temperatures of just over 65°F and average daily maximum temperatures just under 80°F. The winter season is marked by relatively mild temperatures, cloudy skies and rain with southeasterly surface winds predominating. January is the

only month with an average monthly temperature below 40°F and the lowest average daily minimum temperature of 33.5°F.

Precipitation consists mostly of rain with thunderstorms occurring about once a month through the spring and summer months and gentle rains occurring almost daily during winter months. Snowfalls are seldom more than a couple of inches and generally last only a few days. On the average, only five days each year have a measurable amount of snow. The strongest winds, an average velocity of 9.9 mph and prevailing direction of ESE, generally occur in January. The lightest winds occur in September and October, with an average velocity of 6.5 mph and prevailing direction of NW and ESE, respectively.

The average first occurrence of 32°F in the fall is November 7 and the average last occurrence in the spring is April 3.

Climatological data for this area are summarized in TABLE 2-1. Data were collected at the National Weather Service meteorological station at Portland, Oregon.

**TABLE 2-1**  
**CLIMATOLOGICAL DATA FOR**  
**PORTLAND, OREGON**

Month	Temperature		Precipitation	Wind	
	Average Minimum (°F)	Average Maximum (°F)		Average Speed Miles/Hour	Average Direction
January	33.5	44.3	6.16	9.9	ESE
February	36.0	50.4	3.93	9.1	ESE
March	37.4	54.5	3.61	8.2	ESE
April	40.6	60.2	2.31	7.4	NW
May	46.4	66.9	2.08	7.1	NW
June	52.2	72.7	1.47	7.2	NW
July	55.8	79.5	0.46	7.6	NW
August	55.8	78.6	1.13	7.1	NW
September	51.1	74.2	1.61	6.5	NW



r					
October	44.6	63.9	3.05	6.5	ESE
November	38.6	52.3	5.17	8.6	ESE
December	35.4	46.4	6.41	9.5	ESE
Average	44	62	37.39	7.9	ESE

## **2.3 GEOLOGY AND SOILS**

### **2.3.1 GEOLOGY AND PHYSIOLOGY**

Camp Bonneville is located in the Northern Cascade Mountains section of the Cascade Sierra Mountains physiographic province. The region is a plateau-like upland surface which may represent a former erosion surface. There are numerous granitic peaks which rise above the general level of the plateau. Additionally, there are marks of glaciation in the form of innumerable cirques and, on the east side particularly, deep glacial troughs. The topography is rugged; many valleys 2,000 to 3,000 feet deep dissect the region.

The Cascade Mountains are characterized by volcanic rocks. In the southern margin, including the site area, of the Northern Cascade Range, the rocks, instead of being dominantly volcanics, are Paleozoic and Mesozoic sedimentary and metamorphic rocks which have been intruded by numerous small batholiths and stocks. The majority of the peaks are a result of gradational processes rather than having been built by volcanic eruptions.

The glacial effects on the geology are widespread in this region. The upper mountain region receives large amounts of snowfall. These effects can be seen along numerous valleys and occasionally down to low altitudes. Several small glaciers also remain in the Northern Cascade Mountains (Thornbury 1965).

### **2.3.2 SOILS**

The major type of soil on Camp Bonneville is located on the long side slopes in the mountains. The slope of the surface is very steep and the surface layer is stony. Some areas of the soil surface was developed in material moved by gravity and may

still be unstable. The soil is well drained and slowly permeable. The available water capacity is high. Surface runoff is rapid to very rapid, and the hazard of erosion is severe to very severe if the surface is left bare. The corrosivity of the soil to uncoated steel is high and to concrete is moderate.

In a typical profile, starting at the ground surface and going down, the surface layer of the Camp Bonneville soils is stony, dark reddish-brown clayey sandy silt. The subsoil layer is composed of three slightly differing layers. In sequence from the top, the thin upper portion is friable, dark reddish-brown clayey sandy silt; the next layer is firm, reddish-brown heavy clayey sandy silt; and the lower portion is very firm, dark-brown gravelly clayey sandy silt. The underlying material is weathered basalt bedrock. The depth to the basalt bedrock differs as the topography differs. Generally, as the slope increases the shallower the soil. TABLE 2-2 shows a generalized soil profile (McGee 1972).

<b>TABLE 2-2 GENERALIZED SOIL PROFILE</b>					
LAYER	SOIL DESCRIPTION	PERCENTAGE PASSING SIEVE NUMBER			AVL WATER CAP.
		#4	#10	#200	
Surface	Clayey sandy silt	90-100	90-100	75-85	.19-.21
Subsoil	Gravelly, clayey sandy silt	75-90	70-85	35-50	.10-.12
Bedrock	Weathered basalt	90-95	90-95	75-85	.19-.21
Table taken from Soil Survey of Clark County, WA.					

In the extreme western portion of the site the surface is more gently rolling. These areas have a profile similar to that described above. The surface layer is gravelly and the erosion hazards are decreased in proportion to the decrease in surface slope.

The potential for frost extends to a depth of 12 to 18 inches within Camp Bonneville.

## **2.4 HYDROLOGY**

### **2.4.1 SURFACE WATER**

Camp Bonneville, Washington is located along the western side of the Cascade-Sierra Mountain Range. This region is characterized by having open hills, mountain ranges and crests and more than 75% of gentle slope is on upland areas. The soil is warm and moist with a mean annual soil temperature higher than 47 degrees. The natural vegetation cover generally consists of needleleaf forests such as Cedar and Douglas fir.

The prevalent concentration of dissolved minerals in the surface waters of this region is less than 100 parts per million, and the most common chemicals in the river water are calcium, magnesium and bicarbonates. The average suspended sediment concentration in rivers is less than 300 parts per million. The concentration of dissolved minerals in the ground water is less than 1000 parts per million.

The Camp Bonneville, Washington, site area has a steep local relief. The elevation of the terrain ranges from a high of about 1800 feet National Geodetic Vertical Datum (NGVD) at Livingston Mountain to a low of about 300 feet NGVD. The slope along Lacamas Creek in the site area has a drop of about 400 feet per mile. The area generally drains towards the west and southwest through the tributaries of Buck Creek and David Creek into Lacamas Creek. All the surface water drainage eventually empties into the Washougal River and flows southwest into the Columbia River near Camas, Washington. The Columbia River flows north and west along the Washington-Oregon border and empties into the Pacific Ocean near Astoria, Oregon.

### **2.4.2 GROUND WATER**

Camp Bonneville is underlain by aquifers in pre-Miocene rocks. These rocks consist of undifferentiated volcanic rocks, undifferentiated consolidated sedimentary rocks, and undifferentiated igneous and metamorphic rocks. In some

places the thickness of the volcanic rocks might be as much as 5,000 feet and the consolidated sedimentary rocks as much as 15,000 feet. The thickness of the igneous and metamorphic rocks is unknown.

In volcanic rocks, water is present primarily in joints and fractures as in the Pliocene and younger and the Miocene basaltic-rock aquifers. In the consolidated sedimentary rocks, water is present primarily in solution cavities and joints in carbonate rocks and in fractures and pore spaces in clastic rocks, such as sandstone conglomerate. In igneous and metamorphic rocks, water is present primarily in fractures, faults, and weathered zones that developed on exposed surfaces. The aquifers in all rock types generally yield only from 1 to 100 gallons per minute of water to wells.

Water produced from these rocks is usually saltwater but locally may be freshwater (Whitehead 1994). Water produced from any unconsolidated deposits aquifers in the area may also be freshwater. The water is used for industrial, domestic and agricultural purposes.

## **2.5 ENDANGERED SPECIES**

The information provided for this site was compiled from the U.S. Fish and Wildlife Service (USFWS) and the Washington Department of Fish and Wildlife.

The following federally-listed species may occur in the vicinity of Camp Bonneville: bull trout (Salvelinus confluentus), candidate; tailed frog (Ascaphus truei), species of concern; Northwestern pond turtle (Clemmys marmorata marmorata), species of concern; Larch Mountain salamander (Plethodon larselli), species of concern; Cascades frog (Rana cascadae), species of concern; spotted frog (Rana pretiosa), candidate; Pacific western big-eared bat (Corynorhinus (Plecotus) townsendii townsendii), species of concern; long-eared myotis (Myotis evotis), species of concern; long-legged myotis (Myotis volans), species of concern; northern goshawk (Accipiter gentilis), species of concern; olive-sided flycatcher (Contopus borealis), species of concern; bald eagle (Haliaeetus leucocephalus), threatened; northern spotted owl (Strix occidentalis), endangered; and Clackamas corydalis (Corydalis aquae-gelidae), species of concern.

The Washington Department of Fish and Wildlife provided the following list of state-listed species that occurs in the vicinity of Camp Bonneville: tailed frog, state

monitored; Cope's giant salamander (Dicamptodon copei), state monitored; cascade torrent salamander (Rhyacotriton cascadae), state monitored; and northern spotted owl, endangered. The following list of "areas of state concern" also occurs in the vicinity of Camp Bonneville: 2 riparian zone areas that contain small concentrations of mule and blacktail deer (Odocoileus hemionus); 2 snag-rich areas; 2 areas with large concentrations of mule and blacktail deer; 5 areas with small concentrations of mule and blacktail deer; and 2 areas used by nesting wood ducks (Aix sponsa).

No additional information on the occurrence of rare or endangered species or natural communities is known at this time. This does not mean that other state or federally-listed species may not be present within the areas of interest. An on site inspection by appropriate state and federal personnel may be necessary to verify the presence, absence or location of listed species, or natural communities if remedial action is recommended as part of the final ASR.

## **2.6 DEMOGRAPHICS**

Camp Bonneville is located in a rural area where residential and commercial growth caused by the development of Vancouver is gradual. Approximately 2 miles west of the installation is Proebstel, an unincorporated community.

The population statistics for Clark County are: area, 628 square miles; population, 238,053; and population density, 379 persons per square mile. As of mid-March 1993, the business establishments in Clark County include manufacturing (6.8%), agriculture (1.9%), services (32.1%), trade and financial (35.8%), and other (23.4%). Of the people employed in Clark County, 32.1% are employed by trade and financial firms, 29.1% by the service industry, 25.6% by manufacturing businesses, 7.9% by construction, and 5.3% by other businesses.

### **3.0 RECORDS REVIEWED**

This Archives Search Report (ASR) compiles information obtained through historical research at various archives and records holding facilities, interviews with individuals associated with the site or its operations, and personal visits to the site. All efforts were directed towards determining types of munitions used at the site, possible disposal areas, and any unknown training areas. Information obtained during this process was used in developing recommendations for further actions at the site.

Below are the repositories visited, records searched, and documents pertaining to Camp Bonneville listed. Denoted in parentheses after the description of each document is that reference's citation as it is used in the report and APPENDIX A.

#### **3.1 NATIONAL ARCHIVES AND RECORDS ADMINISTRATION**

##### **3.1.1 NATIONAL ARCHIVES I--WASHINGTON DC 700 PENNSYLVANIA AVE., NW WASHINGTON, D. C. 20408-0001 (202) 501-5400**

Record Group 77: Chief of Engineers

Entry 391: Construction Completion Reports

Box 316

File: Vancouver Barracks, Volume I

1. Completion Report of Camp Killpack A-6, Bonneville;  
Vancouver Barracks CCC District, Vancouver Barracks,  
Washington, 11-15-35. (n.a. 1935)

Entry 393: Historical Record of Buildings at Active Posts

Box 22: No file on Camp Bonneville.

Boxes 267-68: No Bonneville--only Vancouver Barracks

Entry 394: Historical Record of Buildings at Abandoned Posts

Box 3: No Camp Bonneville.

Box 21: No Vancouver Barracks.

Record Group 92: Office of the Quartermaster General

Entry 1891: Geographic File

Box 220: Camp Bonneville

File: 684 Camp Bonneville 1925

1. Cross Index referring to the naming of the target range  
Camp Bonneville, 01 December 1925. (War Department 1925)

Box 220: Camp Bonneville

File: 680.41 Camp Bonneville 1926

1. Recommendation, dated 06 April 1926, that lease of  
Bonneville be terminated. (Headquarters, Ninth Corps Area  
1926)

Box 2243

File: 600.914 Vancouver

1. Correspondence, dated 12 December 1929, from War  
Department asking for a completion report from Vancouver  
Barracks on the target range at Bonneville. (Office of the  
Quartermaster General 1929)

Box 2246

File: 684 Vancouver Barracks

1. Weekly Progress Report on the target range, 07 July 1929.  
(Construction Service, Quartermaster Corps 1929)
2. Memorandum, dated 27 January 1926, officially naming the  
camp after Benjamin L. E. Bonneville. (Adjutant General's  
Office 1926)
3. Request for funds, dated 12 September 1928, from the Ninth  
Corps Area for repairs at Camp Bonneville. (Headquarters,  
Ninth Corps Area 1928)

Entry 1998: Real Estate File

Box 25: No file on Camp Bonneville.

Box 227: Vancouver Barracks

File: 601.1 Vancouver

1. Correspondence, dated 14 June 1910, concerning the  
suitability of the target range. (First Infantry 1910)

2. Correspondence, dated 27 May 1910, recommending the acquisition of a target range for Vancouver Barracks. (Adjutant General's Office 1910)
3. Newspaper article (paper and date unknown) with headline: "Range at Proebstel Better Than Linnton for U.S. Army's Use." (Lockley n.d.a)
4. Newspaper article (paper and date unknown) with headline: "Soldiers Themselves Favor the Proposed Range at Proebstel." (Lockley n.d.b)
5. Newspaper article (paper and date unknown) with headline: "Rifle Range: Secretary of War Baker tells Oregon Delegation that tract at Linnton had been decided upon." (n.a. n.d.a)
6. Second Indorsement, dated 21 February 1917, regarding the purchase of tracts of land for target range purposes. (Office of the Quartermaster General 1917)
7. Correspondence from the Secretary of War, dated 07 July 1916, to the publisher of the *Oregon Journal* concerning the acquisition of Camp Bonneville. (Secretary of War 1916)
8. Summary of Communication regarding the government's option on the land at Proebstel, dated 29 January 1917. (Jones 1917)
9. Summary of Communication regarding the acquisition of target range land in Holbrook, Oregon, dated 10 January 1917. (Mearns 1917)
10. Second Indorsement, dated 05 April 1916, concerning the purchase of target range land. (Office of the Quartermaster General 1916)
11. Memorandum, dated 17 February 1917, comparing the Proebstel and Holbrook Ranges. (Department Engineer Office, Western Department 1917)



Record Group 153: Judge Adjutant General

Entry 56, Subseries 1: Reservation File 1800-1950

Boxes 520 and 523

Nothing of value.

Record Group 168: National Guard Bureau

Entry 9: Indexed by State

Box 334: Washington

Nothing of value

Entry 9: Indexed by Subject

Box 344: Abbreviations to Buzzer Wire

Nothing of value.

Box 352: Unallocated Funds to Youngmen's Christian Assoc.

Nothing of value.

Entry 12: Reports of Small Arms Firing

Box 359: Nothing of value.

Record Group 175: Office of the Chemical Warfare Service

Entry 1: Central Correspondence, 1918-1942

Box 349

File: 400.312/68, 25 May 1934

1. Wrapper Indorsement referring to gas masks at Vancouver Barracks. (Headquarters, Ninth Corps Area 1934)

Box 351

File: 400.312/420, 23 March 1936

1. Requisition for an empty shipping container for detonating gas ID sets. (Office of the Chief of Chemical Warfare Service 1936)

Box 352

File: 400.312/641, 19 April 1937

1. CWS Requisition for detonating gas ID sets for Vancouver Barracks. (Chemical Warfare Service 1937)

Box 358

File: 400.312/1697, 24 October 1940

1. Correspondence concerning gas ID sets and smoke pots for Vancouver Barracks. (Headquarters, Ninth Corps Area 1940)

Box 475

File: 470.6/5101, 05 April 1935

1. Correspondence pertaining to the use of a detonating gas ID set. (Assistant Adjutant General 1935)

Box 520

File: 471/51, 10 August 1937

1. Report of the use of a detonating gas ID set. (Headquarters, Ninth Corps Area 1937)

Entry 2: Index Briefs to Central Correspondence, 1918-1942

Box 516

File: Vancouver Barracks

1. Reviewed and photocopied the index cards that referred to the documentation in Entry 1 above. (n.a n.d.b)

Record Group 393: Record of US Army Continental Commands 1821-1920

Part V, Entry 37

Box 10: Vancouver Barracks, Correspondence 1913-1916

Nothing of value.

**3.1.2        NATIONAL ARCHIVES II--COLLEGE PARK**  
**8601 ADELPHI ROAD**  
**COLLEGE PARK, MD 20740-6001**  
**(301) 713-6800**

**3.1.2.1     TEXTUAL REFERENCE BRANCH**

Record Group 77: Office of the Chief of Engineers

Entry 1011: Security Classified Subject Files, 1940-45

Box 199

File: Camp Bonneville

1. Correspondence, dated 07 May 1943, pertaining to construction at Camp Bonneville. (Office of the Division Engineer, Pacific Division 1943)

Box 512: No file on Camp Killpack.  
Boxes 523-24: Nothing of value in files on Ft. Lewis.  
Box 853: Nothing of value in files on Vancouver Barracks.

Entry 1013: General Correspondence with Districts  
Box 241: Portland  
Box 319: Seattle  
Nothing of value in either of these boxes.

Entry 1014: General Correspondence with Divisions  
Boxes 63-65: Northwest Division  
Nothing of value on Camp Bonneville.

Entry 1019: General Correspondence with Service Commands  
Boxes 29-33: Ninth Service Command  
Boxes 34-35: Northwest Service Command  
Nothing of value on Camp Bonneville.

Record Group 92: Quartermaster General

Entry 1892A: General Correspondence, Geographic File, 1936-45  
Box 53: No file on Camp Bonneville.  
Box 604: Tate- Zachary  
No file on Vancouver Barracks.  
Box 623  
The file on Vancouver Barracks did not have any information on  
Camp Bonneville.

Entry 1892B: Geographic File, 1946-48  
Box 90: No file on Camp Bonneville.  
Boxes 611-612  
Files on Vancouver Barracks did not have any information on  
Camp Bonneville.

Record Group 121: Public Building Service

Entry NN3-121-94-001: Records Relating to Surplus Real Property, 1946-50  
Box 6: File on Vancouver Barracks of no value.

Record Group 175: Chemical Warfare Service

Entry 67A4900: Station File, 1946-1954  
Box 310: File on Ft. Lewis was of no value.

Record Group 269: Records of the General Services Administration

Entry NN3-269-84: Real Property Disposal Case Files from the Farm Credit Administration 1945-53

Box 10: Camp Adair to Camp Bowie

File: Camp Bonneville

1. Correspondence, dated 10 July 1946, from the State of Washington requesting Camp Bonneville for a state forest. (Department of Conservation and Development, State of Washington 1946)
  
2. Report of Disposition Board Covering Camp Bonneville, Clark County, Washington, dated 02 May 1947. (War Assets Administration 1947)

Record Group 291: Records of the Federal Property Resources Service

Entry NN3-291-94-001: Real Property Disposal Case Files, 1962

Box 204

File: Camp Bonneville

1. "Report of Excess Real Property," dated 23 November 1953, on the land at Bonneville leased from the State of Washington. (General Services Administration 1953)

Record Group 338: Records of U. S. Army Commands, 1942-

Entry: Posts, Camps and Stations

Box 950

File: Fort Lewis, WA

Nothing of value on Camp Bonneville.

Entry: Ninth Service Command, Adjutant General's Office, 1931-45

Boxes 1-9: Nothing useful on Camp Bonneville.

Box 10

File: Telegram--Dec. 10, 1941

1. Telegram concerning the use of chemical warfare material. (Signal Corps, United States Army 1941)

Box 11-13: Nothing of value on Camp Bonneville.

Box 14

File: Training Memorandum No. 1.

1. Chapter XIII of this memorandum details Ninth Corps Area Chemical Warfare Training procedures. (Headquarters, Ninth Corps Area 1944)

Entry: Ninth Service Command, Air Liason Office

Box 23: Nothing of value on Camp Bonneville.

Entry: Ninth Service Command, Ordnance Officer

Box 28-29: Nothing useful on Camp Bonneville.

Entry: Ninth Service Command, Military Training Division

Boxes 31-32: Nothing of value on the site.

Entry: 4th U. S. Army and Western Defense Command

Boxes 13 and 16: Restricted Areas (WA)

Nothing useful on Camp Bonneville.

Entry: 4th U. S. Army and Western Defense Command, Adjutant General's Section

Boxes 21-25: Nothing useful on Camp Bonneville.

Entry: 4th U. S. Army and Western Defense Command, Central Correspondence, 1942-46

Boxes 92-93: 601-675

Nothing useful on Camp Bonneville.

Entry: 4th U. S. Army and Western Defense Command, Bound Volumes

Nothing of value on Camp Bonneville.

Entry: 4th U. S. Army, Continental Army 1946-

Box 264: Command Progress

No information on Camp Bonneville.

Box 314: Radiological Files

Nothing useful on Camp Bonneville.

Box 315: Installation Planning Files

Nothing of value on Camp Bonneville.

Entry: Sixth U. S. Army, Adjutant General's Office, 1943-46  
Boxes 112-113: Nothing useful on Camp Bonneville.

Entry: Sixth U. S. Army, CW Section  
Boxes 136 and 153: Nothing useful on Camp Bonneville.

### **3.1.2.2      CARTOGRAPHIC BRANCH**

Aerial photography and historic maps were reviewed for Vancouver Barracks.  
None of these items showed anything useful on Camp Bonneville.

### **3.1.2.3      STILL PICTURES BRANCH**

No useful photographs of Camp Bonneville were found here.

### **3.1.3          WASHINGTON NATIONAL RECORDS CENTER 4205 SUTLAND ROAD SUTLAND, MD 20409-0002 (301) 457-7000**

Record Group 77: Office of the Chief of Engineers

Accession: A53-325

Box 71

File: 600.4 Vancouver Barracks

1. Correspondence, dated 20 February 1950, concerning the rehabilitation of Camp Bonneville for weekend and field training. (Headquarters, Sixth Army 1950)

Accession: A52-0259

Box 12

File: Camp Bonneville

1. Correspondence, dated 31 June 1947, referencing the withdrawal of Camp Bonneville from surplus status. (Office of the District Engineer, Portland District 1947)

Record Group 291: Records of the Federal Property Resources Service

Accession 68-5714: Real Property Disposal Files

Box 331

Nothing of value.

**3.1.4 NATIONAL PERSONNEL RECORDS CENTER  
MILITARY PERSONNEL RECORDS  
9700 PAGE AVENUE  
ST. LOUIS, MO 63132-5100  
(314) 538-4085**

All of these records were filed under the name "Ft. Lewis;" there were no references to "Camp Bonneville," or "Vancouver Barracks" that seemed useful after their examination using a filing manual.

Record Group 338: Records of U. S. Army Commands, 1942-

Accession: 64A-6001, 1 box

General Orders.

Nothing useful on Camp Bonneville.

Accession: 64C-6001, 2 boxes

Financial surveys, Death Certificates, Commander's Analyses, and Intelligence Reports.

Nothing of value on Camp Bonneville.

Accession: 64A-6012, 1 box

Cost and Performance Reports, Court-martials, and Awards.

Nothing useful on Camp Bonneville.

Accession: 64B-6012, 1 box

Program Progress Reviews, and Operation Programs, FY61.

Nothing of value on Camp Bonneville.

Accession: 65A-6003, 1 box

Management Structure Manuals, Court-martials, and Circulars.

Nothing useful on Camp Bonneville.

Accession: 65B-6003, 1 box

Reports of ROTC Camps at Ft. Lewis, Awards, and Cost and Performance Analyses.

Nothing of value on Camp Bonneville.

Accession: 65A-6004, 2 boxes  
Management Manuals, Budget information, Reorganization files,  
Circulars, General Orders, and Court-martials.  
Nothing useful on Camp Bonneville.

Accession: 67A-6002, 1 box  
Management Manuals, Cost Performance Reports, and Program  
Analyses.  
Nothing of value on Bonneville.

Accession: 68A-6001, 1 box  
Cost Data, Awards, Reorganization Disposition Forms, Court-martials  
and Circulars.  
Nothing useful on Camp Bonneville.

Accession: 68B-6001, 1 box  
Regulations, Ft. Lewis.  
Nothing of value on Camp Bonneville.

Accession: 68B-6002, 1 box  
Cost and Performance Reports, and Program Analysis Reports.  
Nothing useful on Camp Bonneville.

Accession: 68D-6002, 1 box  
Reviews of Expenditures, Obligations and Funding from FY64.  
Nothing of value on Camp Bonneville.

Accession: 68A-6003, 1 box  
Court-martials, Death Certificates, and Awards.  
Nothing useful on Camp Bonneville.

**3.1.5      NATIONAL ARCHIVES--PACIFIC NORTHWEST REGION**  
**6125 SAND POINT WAY, NE**  
**SEATTLE, WA 98115**  
**(206) 526-6507**

Record Group 77: Chief of Engineers  
Portland District, 1947-82  
Boxes 31-36; 44-45; and 64-68  
Nothing of value on Bonneville.



Seattle District, 1943-53  
Boxes 2-5; 10; 12; and 18  
Nothing of value on Bonneville.

Record Group 270: Records of the War Assets Administration

Entry: Real Property Disposal Case Files

Box 357

File: 600 Camp Bonneville, Appraisals

1. "Appraisal of Camp Bonneville Military Reservation, Clark County, Washington." (War Assets Administration 1946)
2. Map: "Topographic Map," 1926. (7th Infantry, Vancouver Barracks 1926)
3. Map: "Building and Block Numbers," 300-500 and 1100-1300 (1945). (Office of the Post Engineer, Vancouver Barracks 1945a)
4. Map: "Building and Block Numbers," 1700-1900 and 2500-2700 (1945). (Office of the Post Engineer, Vancouver Bar.1945b)
5. Map: "Building and Block Numbers," 2100-2300, 2900-3100 and 3700-3900 (1945). (Office of the Post Engineer, Vancouver Barracks 1945c)
6. Map: "Building and Block Numbers," 4200-4500 (1945). (Office of the Post Engineer, Vancouver Barracks 1945d)
7. Map: "General Layout, Camp Bonneville A-A Range," 1943.(U. S. Army Engineer District, Portland 1943)

**3.1.6        FEDERAL RECORDS CENTER--SEATTLE  
6125 SAND POINT WAY, NE  
SEATTLE, WA 98115  
(206) 526-6501**

Record Group 77: Office of the Chief of Engineers

Accession: 87-0056

Boxes 1-4 of 4

Installation Historical Files from USACE-Portland District

Nothing of value on Bonneville.

Accession: 93-0036

Box 1 of 1

Files from USACE-Portland District  
Nothing of value on Bonneville.

### **3.2 MILITARY ARCHIVES, LIBRARIES, AND INFORMATION SOURCES**

#### **3.2.1 U. S. ARMY CENTER OF MILITARY HISTORY 1099 14TH STREET, NW WASHINGTON, D. C. 20005-3402 (202) 761-5416**

1. Camps, Posts and Stations File: No entry for Camp Bonneville.
2. Unit Data Cards: No Bonneville card in Washington State File.

#### **3.2.2 U. S. ARMY CORPS OF ENGINEERS OFFICE OF HISTORY 7701 TELEGRAPH ROAD ALEXANDRIA, VA 22310-3865 (202) 355-3558**

1. *Military Reservations* (1937). A sketch of Camp Bonneville's location, area, history, and easements. (War Department 1937)

#### **3.2.3 U. S. ARMY MILITARY HISTORY INSTITUTE CARLISLE BARRACKS CARLISLE, PA 17013-5008 (717) 245-3601**

##### **3.2.3.1 LIBRARY**

1. *Northwest Bastion: The U. S. Army Barracks at Vancouver, 1849-1916* (1991) by Ted Van Arsdol. (Van Arsdol 1991)

##### **3.2.3.2 ARCHIVES**

This branch of the MHI did not have any useful material on Camp Bonneville.

**3.2.3.3 STILL PICTURES BRANCH**

No useful photographs on Camp Bonneville were found here.

**3.2.4 U. S. ARMY CHEMICAL AND BIOLOGICAL DEFENSE AGENCY  
HISTORICAL DIVISION  
BUILDING E5183  
ABERDEEN PROVING GROUND, MD 21010-5423  
(410) 671-4430**

1. *History of CWS Activities at Ports of Embarkation* (1947) by Sylvester John Hoaleben. (Hoaleben 1947)

**3.2.5 U. S. ARMY ENVIRONMENTAL CENTER  
TECHNICAL INFORMATION CENTER  
EDGEWOOD AREA TRAILER 4464-2T  
ABERDEEN PROVING GROUND, MD 21010  
(410) 679-7878**

1. "USATHAMA [U.S. Army Toxic and Hazardous Material Agency] Property Report," dated December 1990. (U. S. Army Toxic and Hazardous Material Agency 1990)

2. *Installation Assessment of the Headquarters, I Corps and Fort Lewis, Wash., and the Subinstallations Yakima Firing Center, Camp Bonneville, and Vancouver Barracks, Wash.* (September 1983) by Environmental Science and Engineering Inc. (Environmental Science and Engineering, Inc. 1983)

**3.3 FORT LEWIS  
TACOMA, WA 98433**

**3.3.1 ENVIRONMENTAL OFFICE  
MR. GRADY MAY, PROJECT MANAGER  
(206) 967-8435**

1. "U. S. Army Base Realignment and Closure 95 Program, Environmental Baseline Survey Report," prepared for U. S. Army Corps of Engineers, Seattle District by Woodward-Clyde, Denver, Colorado, dated 16 February 1996. (Woodward-Clyde 1996a)

2. "U. S. Army Base Realignment and Closure 95 Program, BRAC Cleanup Plan Report, Version 1 Final Report," prepared for the U. S. Army Corps of Engineers, Sacramento District and Seattle District, by Woodward-Clyde, Seattle, WA, dated October 1996. (Woodward-Clyde 1996b)

3. "Location of Camp Bonneville Military Reservation." Environmental Baseline Survey Report, U. S. Army Base Realignment and Closure 95 Program, dated February 16, 1996. Prepared for U. S. Army Corps of Engineers, Seattle District. Environmental Office, Fort Lewis, Tacoma, WA.

4. Map: "Camp Bonneville," n.d. (n.a. n.d.e)

5. Map: "Engineer Troop Training Projects," 1958. (Office of the Post Engineer, Vancouver Barracks 1958a)

6. Map: "1957 Timber Harvest and Reforestation," 1957. (Post Engineer, Vancouver Barracks 1957)

7. Map: "Firing Range Sites," 1958. (Post Engineer, Vancouver Barracks 1958c)

### **3.3.2 REAL ESTATE OFFICE**

#### **3.3.2.1 TEXTUAL RECORDS**

1. Range Waiver, dated 15 July 1988. (Headquarters, I Corps and Ft. Lewis 1988)

2. Newspaper articles from *The Columbian*, concerning reuse options of Bonneville: "Expansion of Larch facility proposed," "Camp Bonneville to be discussed," "Many Ideas Surface for Camp Bonneville Site" (dates unknown). (Wolf n.d.a, n.d.b; n.a. n.d.c)

3. Description of Training Areas, dated 15 February 1983. (n.a. 1983b)

4. Building List, 1982. (n.a. 1982)

5. Building List, 1983. (n.a. 1983a)

6. Building List, 1994. (n.a. 1994)

7. Small Arms Ranges: descriptions, guidelines and responsibilities, dated 30 March 1984. (n.a. 1984a)
8. Camp Bonneville Site Map and Building Descriptions, 30 March 1984. (n.a. 1984b)
9. "Preliminary Assessment Screening Lease, Renewal of Two Washington State Parcels, Camp Bonneville, Washington" May 1991. (Environmental and Natural Resources Division, Fort Lewis, WA 1991b)
10. "Transfer of Construction," 12 January 1959. (Property Officer 1959)
11. "Termination of Out-Grants at Camp Bonneville Military Reservation, WA," 01 November 1996. (Department of Public Works, Ft. Lewis, WA 1996)
12. "Environmental Impact Assessment, Camp Bonneville, WA: Ongoing Operations," August 1978. (Installation Environmental Committee 1978)
13. "Permit to Other Federal Government Department or Agency to Use Property on Camp Bonneville," 16 May 1971. (Department of the Army 1971)
14. "License for National Guard Purposes," 16 May 1971. (Department of the Air Force 1971)
15. "Retention of Camp Bonneville Military Reservation, Washington," 12 May 1950. (Installations Branch, Service Division 1950)
16. Site Map showing ranges (date unknown). (n.a. n.d.g)
17. "Request for assistance," from USATHAMA (U. S. Army Toxic and Hazardous Material Agency), 15 March 1991. (Environmental and Natural Resources Division, Fort Lewis, WA 1991a)
18. General information concerning training at Camp Bonneville, 10 October 1991. (Palfy 1991)
19. Newspaper Article from the *Ranger*, 02 March 1995, "Will BRAC Bite Back?" (Rosenburgh 1995)

20. Map: "Topographic Map of Camp Bonneville, WA," 1958. (Post Engineer, Vancouver Barracks 1958i)

**3.3.2.2      MAP DRAWER**

1. "Topographic Map," 1958. (Civilian Conservation Corps 1958)
2. "Upgrading Primary Electrical Distribution," 1983. (Elcon Associates 1983c)
3. "General Site Map," 1981. (John Graham Company 1981b)
4. "Reservation Map," 1981. (John Graham Company 1981c)
5. "Fire Plans," 1972. (n.a. 1972)
6. "Camp Bonneville," n.d. Excerpt from Appendix E, FL Reg. 350-12, dated 30 March 1984. (n.a. n.d.f)
7. "General Grounds Maintenance, 1959 Season," 1959. (Office of the Post Engineer, Fort Lewis, Washington 1959)
8. "Reservation Boundary and Range Map," 1959. (Office of the Post Engineer, Vancouver Barracks 1959)
9. "Site and Building Use Map," 1958. (n.a. 1958)
10. "Topographical Map of Camp Bonneville, WA," 1958. (Post Engineer, Vancouver Barracks 1958j)
11. "Topographic Map," 1957. (7th Infantry, Vancouver Barracks 1957)
12. "Topographic Map," 1970. (30th Engineer Battalion 1970a)
13. "Topographic Map," (showing training areas), 1970. (30th Engineer Battalion 1970c)
14. "Real Estate," 1964. (War Department 1964)

### **3.3.3            MAP VAULT**

1. "Construct Ammo Storage Facility and Increase Physical Security of Existing Bunkers, Camp Bonneville, WA," 1974. (Directorate of Facilities Engineering 1974)
2. "Range Fans--Coverages," 1987. (Johnson Braund Design Group, Inc. 1987c)
3. Copy of Aerial Photo, 9-9-48. (n.a. 1948)
4. "General Site Map," n.d. (Office of the Post Engineer, Fort Lewis, Washington n.d.)
5. "Site and Building Use Map, " 1958. (Office of the Post Engineer, Vancouver Barracks 1958b)
6. "Modernization of Firing Ranges, Camp Bonneville, WA," 1967. (Office of the Post Engineer, Vancouver Barracks 1967)
7. "Bayonet Course, Qualification Course," 1958. (Post Engineer, Vancouver Barracks 1958a)
8. "Firing Ranges Existing and Proposed," 1958. (Post Engineer, Vancouver Barracks 1958b)
9. "Live Hand Grenade Court," 1958. (Post Engineer, Vancouver Barracks 1958d)
10. "Mortar Training Shell Range," 1958. (Post Engineer, Vancouver Barracks 1958e)
11. "Practice Hand Grenade Courts," 1958. (Post Engineer, Vancouver Barracks 1958f)
12. "Submachine Gun Dismounted Practice Course Layout and Target Control," 1958. (Post Engineer, Vancouver Barracks 1958g)
13. "Submachine Gun Dismounted Practice Course Plot Plan and Target Details," 1958. (Post Engineer, Vancouver Barracks 1958h)
14. "Camp Bonneville Reservation, Camp Bonneville and Vicinity," 1960. (Post Engineer, Vancouver Barracks 1960)

15. "Range Safety Areas, Sheet No. 2, KD Range, 3.5" R.L. Range, Hand Grenade Range," 1972. (2d FA Battalion, 218 Arty, OR ARNG 1972a)
16. "Range Safety Areas, Sheet No. 2, Close Combat Range and Pistol Range," 1972. (2d FA Battalion, 218 Arty, OR ARNG 1972b)
17. "Range Safety Areas, Sheet No. 3, Night Fire Range and 25 Meter MG Range," 1972. (2d FA Battalion, 218 Arty, OR ARNG 1972c)
18. "Topographic Map, Close Combat Course," 1970. (30th Engineer Battalion 1970d)
19. "Basic Information Map--General Site Map," 1959. (War Department 1959)

#### **3.3.4 FORESTRY SECTION WITHIN PUBLIC WORKS**

1. Aerial photography of Camp Bonneville from 1963, 1978, 1988, and 1989.

#### **3.4 U. S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT 4735 EAST MARGINAL WAY SOUTH SEATTLE, WA 98124-2255**

##### **3.4.1 ENGINEERING RECORDS AND INFORMATION BRANCH JOYCE E. ROLSTAD, CHIEF (206) 764-6704**

1. Analysis of Design (Final Design--Corrected) for Design Local Training Area Camp Bonneville, Washington. Prepared for the Seattle District, Corps of Engineers. November 1987. Contained a Description of the two cantonment areas and ranges. (Johnson Braund Design Group, Inc. 1987a)
2. Map: "Site Plan, Color Schedules," 1979. (Directorate of Facilities Engineering 1979)
3. Map: "Cantonment Plans," 1983. (Elcon Associates, Inc. 1983a)
4. Map: "Construction Site Plan, Upgrading Primary Electrical Distribution," 1983. (Elcon Associates, Inc. 1983b)
5. Map: "General Site Map," 1981. (John Graham Company 1981a)



6. Maps: "Local Training Area," 1987. Set of 14 "as built" drawings. (Johnson Braund Design Group, Inc. 1987b)
7. Map: "Topographic Map," 1970. (30th Engineer Battalion 1970b)
8. Maps: "Foundation Exploration," 1987. Sheets 3-7 of 7 total. (U. S. Army Engineer District, Seattle 1987a, 1987b, 1987c, 1987d, and 1987e)
9. Map: "Camp Bonneville Military Reservation," 1980. (U. S. Army Forces Command 1980)

#### **3.4.2 REAL ESTATE OFFICE**

1. Map: "Military Reservation," 1989. (District Engineer, Seattle District 1989)
2. Map: "Index to Outgrants," 1994. (District Engineer, Seattle District 1994)

#### **3.4.3 SURVEY BRANCH, ENGINEERING DIVISION**

1. Aerial photography of Camp Bonneville from 1985.

#### **3.5 CAMP BONNEVILLE MILITARY RESERVATION MR. JERRY CUMMINGS MR. WARREN FJELDOS (360) 694-3280**

1. Map: "Camp Bonneville, Special," 1991. (54th Engineer Detachment 1991)
2. Notes from interviews with Mr. Cummings and Mr. Fjeldos can be found in Section 4.5 and APPENDIX C.

#### **3.6 VANCOUVER BARRACKS SFC BJERKE (360) 694-7555**

1. Vancouver Barracks maintains no records on Camp Bonneville, but notes from an interview SFC Bjerke can be found in Section 4.5.

**3.7 STATE AND LOCAL LIBRARIES AND HISTORICAL SOCIETIES**

**3.7.1 WASHINGTON STATE ARCHIVES  
OLYMPIA, WA 98504  
(360) 753-5485**

This facility has no records concerning Camp Bonneville.

**3.7.2 SOUTHWEST WASHINGTON REGIONAL STATE ARCHIVES  
OLYMPIA, WA 98504  
(360) 753-5485**

This facility has no records concerning Camp Bonneville.

**3.7.3 WASHINGTON STATE LIBRARY  
OLYMPIA, WA 98504  
(360) 753-4024**

This library has several things on Ft. Lewis, which were reviewed, but they had no information on Camp Bonneville.

**3.7.4 FORT VANCOUVER HISTORICAL SOCIETY/CLARK COUNTY HISTORICAL  
MUSEUM  
VANCOUVER, WA 98668  
(360) 695-4681**

No pertinent information on Camp Bonneville.

**3.7.5 FORT VANCOUVER NATIONAL HISTORIC SITE  
VANCOUVER, WA 98661  
(360) 696-7655**

The collection at the library at the historic site concerns the frontier-era post, Fort Vancouver.

**3.7.6 VANCOUVER COMMUNITY LIBRARY**  
**VANCOUVER, WA 98660**  
**(360) 695-1566**

The on-line catalog and the clipping file index indicated that the library had no information on Camp Bonneville.

**3.7.7 ST. LOUIS PUBLIC LIBRARY**  
**ST. LOUIS, MO 63103**  
**(314) 241-2288**

1. Map: "Lacamas Creek, WA," dated 1990. U.S. Geological Survey.
2. Map: "Larch Mtn., Wash," Provisional Edition dated 1986, revised map dated 1993.

## **4.0 HISTORICAL ORDNANCE USAGE**

### **4.1 HISTORICAL SITE SUMMARY**

Troops from Vancouver Barracks began to use land near Proebstel, WA, for a target range in 1910. At this time, however, the federal government did not own the land. It had an option on the property, but this option was not utilized for many years. In 1912, the government obtained another option, but after it expired in 1915, the army started conducting its target practice at an Oregon National Guard range near Clackamas, Oregon. The acquisition of the original reservation, consisting of about 3018.94 acres, occurred in 1918 by purchase and condemnation, and it was officially named Camp Bonneville in 1926 (Van Arsdol 1991: 87, 90, 96; War Department 1937).

Camp Bonneville contains two separate cantonment areas. The Camp Bonneville cantonment area seems to have been built in the late 1920's. The Environmental Baseline Survey Report contains a building list which shows several barracks and storage buildings with construction dates of 1927 and 1928 (Woodward-Clyde 1996a: Section 3.3). This contention is reinforced by a historical document from 1926 indicating that activity and construction at Camp Bonneville was expected to increase in the near future (Headquarters, Ninth Corps Area 1926). In 1935, the Civilian Conservation Corps (CCC) built and occupied the Camp Killpack cantonment area. The CCC was a New Deal program that taught youths conservation tactics in the nation's parks and forests. These facilities included barracks, kitchens and mess halls, an infirmary, latrines, administration and recreation buildings, and a library (n. a. 1935).

Several organizations used the facilities at Camp Bonneville besides the garrison at Vancouver Barracks (numbering about 750 at the time). Citizens Military Training Camps (CMTC) and the Reserve Officer Training Corps (ROTC) used the camp. The ROTC program prepared college students for a commission in the army and CMTC's exposed high-school age males to military discipline and training as well as physical activity and good citizenship (Construction Service, Quartermaster Corps 1929).

During the Second World War, Camp Bonneville continued to be used as a training area for Vancouver Barracks, which was part of the Portland Sub-port of Embarkation. The camp also housed Italian prisoners-of-war. In 1946, the War Department declared the property excess, but in May 1947, the military withdrew

the camp from surplus, citing a continued need for its training facilities (Hoaleben 1947; Davis, personal communication, 1996; War Assets Administration 1947).

In 1950, the army rehabilitated many of the buildings and systems at the cantonment areas and the ranges. This project was undertaken in preparation for weekend and summer training by U. S. Army Reserve units in Southern Washington and Northern Oregon. The National Guard and the Marine Corps also expressed an interest in training at Bonneville at this time (Headquarters, Sixth Army 1950). In the early 1950's the Defense Department arranged to lease an additional 840 acres from the State of Washington to expand the training possibilities of the post (General Services Administration 1953). In 1957, in the last significant real estate action, the army returned twenty acres of the leased land to the state (Woodward-Clyde 1996a: Section 3.2). In 1959, Vancouver Barracks became a sub-installation of Fort Lewis located in Tacoma, Washington. Consequently, Fort Lewis assumed responsibility for Camp Bonneville (Property Officer, Vancouver Barracks 1959).

From its removal from surplus in 1947 to its placement on BRAC Closure list in 1995, the mission of Camp Bonneville had essentially remained the same. It provided a training area for a variety of military units from the U. S. Army, National Guard, Reserves, and U. S. Air Force. Federal, state and local law enforcement agencies also used the post. In the 1980's, many different civilian organizations used the reservation for camping, picnics, and environmental studies. All active training units ceased operations at Bonneville by October 1995, and by November 1996 the cancellation of all the out-grants for use of the post's facilities was started. This action, however, did not include the FBI Range. The FBI will continue to use their range under the reuse proposals (Department of Public Works, Fort Lewis, WA 1996; Woodward-Clyde 1996a: Section 3.2, 1996b: Section 2.3).

## **4.2 OE ACTIVITIES**

### **4.2.1 RANGES AND TRAINING AREAS**

The army started target practice on a rifle range in 1910. The range officer at Proebstel described the range as "one of the best ranges on the Pacific Coast." The near-level range floor was protected from the wind by the foothills of the Cascade Mountains, but it faced east, which hindered early morning target practice. The army placed fourteen short-range and seven long-range targets in the valley which

was 350 yards wide and 2000 yards long (First Infantry 1910; Department Engineer Office, Western Department 1917). In 1918, the range contained twenty-four targets. At some point prior to 1929, a machine gun and howitzer range was added to the training facilities (Construction Service, Quartermaster Corps 1929). The 1959 Property inventory includes the following ranges: a known distance range, a pistol range (20 targets), submachine gun range (21 targets); a live hand grenade range, and a mortar training shell range. There is neither a machine gun range nor an anti-aircraft target range listed on this inventory under the heading "Training Areas," but the list includes several targets, target storage buildings, and range control buildings for these ranges (Property Officer, Vancouver Barracks 1959). Live artillery firing occurred occasionally at Camp Bonneville. Artillery units conducted firing exercises about twice a year from 1969-1985, resulting in approximately 50 rounds being fired into the impact area during each training session. Sometime in the 1970's, however, the military switched to sub-caliber rounds for training purposes (Environmental and Natural Resources Division, Fort Lewis, WA 1991b). Additional range information derived from maps uncovered during historical research will be discussed later in Section 4.4.

Additional training in maneuvers, bivouacking and tactics could be accomplished on the many training areas at Camp Bonneville. Occasionally vehicles would support this training, and the use of smoke or riot control agents could be authorized (Environmental Science and Engineering Inc. 1983).

It is possible that unserviceable munitions may have been burned in the demolition areas. The 1971 agreement between the army and air force says that all munitions had to be destroyed by burning or detonation. A 1986 amendment allowed unserviceable munitions to be destroyed by a high order detonation only, and later in 1993, the destruction of unserviceable munitions by any method was not permitted (Department of the Army 1971).

#### 4.2.2 AMMUNITION STORAGE FACILITIES

A building list from 1946 lists two Ammunition Magazines, buildings 2950 and 3754. The property inventory produced in 1959 when Camp Bonneville became a sub-installation of Fort Lewis shows that building 2950 was still used as a Ammunition Storage facility, but it does not show a building 3754 (War Assets Administration 1946; Property Officer, Vancouver Barracks 1959). The Environmental Baseline Survey building list notes three Ammunition Bunkers, buildings 2950-52, and it lists the construction date as 1976 (Woodward-Clyde

1996a: Section 3.3). Actual types and quantities of ordnance and explosives stored are unknown.

### **4.3 CWS ACTIVITIES**

Several documents from the 1930's discuss the expenditure of detonating gas ID sets from Vancouver Barracks' supply. These documents all refer to the use of one set per instance, but they do not specify the location or extent of the training involved (Assistant Adjutant General 1935; Office of the Chief of Chemical Warfare Service 1936; Chemical Warfare Service 1937; Headquarters, Ninth Corps Area 1937). It is known, however, that Camp Bonneville could have been the location of this activity. It had two gas chambers (Woodward-Clyde 1996a: Section 4.2.6), and it also had a 100 yard by 100 yard mustard training area (Hoaleben 1947: 731). The location of the mustard training area is not provided in Hoaleben's *History of CWS Activities at Ports of Embarkation*, but it may have been in the vicinity of the "old gas chamber" identified by the Environmental Baseline Survey (EBS). An undated map from the Real Estate Office at Fort Lewis has a hand-written note in this area which reads "Gas ID" (n.a. n.d.g). Other Chemical Warfare Service items mentioned in historical documentation include gas masks, smoke pots, demustardizing agents and apparatuses, tear gas capsules, and land mines. These references were obtained by researchers by looking at files concerning Vancouver Barracks (n.a. n.d.b; Headquarters, Ninth Corps Area 1934, 1940).

According to the EBS, the "old gas chamber" described above was burned in the 1970's, and research has discovered two possible locations for the second gas chamber in Camp Bonneville's cantonment area. The first possible building is T-1834, built in 1927. The Real Property Utilization Reports assembled by the Fort Lewis Real Estate Office, however, lists two separate buildings as the gas chamber: T-1834 and T-1864. In 1982, building T-1834 is listed as the CBR (chemical, biological, and radiological) chamber--later known as NBC (nuclear, biological and chemical) chamber, but the following year's survey says that it is building T-1864. The 1994 report, again, lists T-1834 as the gas chamber. This discrepancy is possibly caused by a typographical error (n. a. 1982, 1983a, 1994; Woodward-Clyde 1996a: Section 3.3).

#### **4.4 RANGE INFORMATION FROM HISTORICAL MAPS**

##### **4.4.1 PRE-WORLD WAR II**

RANGE IDENTIFICATION	ORDNANCE POTENTIALLY USED
Rifle Range	M1 Rifle (.30 caliber)
Machine Gun Range	M1919 Machine Gun (.30 caliber)

~~Source: 7th Infantry, Vancouver Barracks 1926 (PLATE 9).~~

##### **4.4.2 WORLD WAR II ERA**

RANGE IDENTIFICATION	ORDNANCE POTENTIALLY USED
Anti-Aircraft Range--500" miniature (includes overhead, parachute, climbing and diving, and horizontal targets)	.22 caliber, pedestal mounted machine gun
Rifle Range	M1 Rifle (.30 caliber)
Pistol Range	M1911A1 Pistol (.45 caliber)
1000" Rifle and Light Machine Gun Range	M1 Rifle (.30 caliber) M1919 Machine Gun (.30 caliber)
Infiltration Course	M1919 Machine Gun (.30 caliber)

~~Source: U. S. Army Engineer District, Portland 1943 (PLATE 10).~~



#### 4.4.3 LATE 1950's

RANGE IDENTIFICATION	ORDNANCE POTENTIALLY USED
Demolition Area	A wide range of explosives and ordnance
Sub-machine Gun Range	M3 Sub-machine Gun (.45 caliber)
Pistol Range	M1911A1 Pistol (.45 caliber)
Rifle Range	M1 Rifle (.30 caliber)
Artillery Impact Area	Up to 155mm Howitzer NOTE: The Artillery Firing Points include 37mm.
Field Firing Area	.30 and .50 caliber weapons. Pop-up targets at different distances. Accuracy not measured; goal is simply to hit target.
Record Firing Range	.30 and .50 caliber weapons. Accuracy measured using paper targets.
1000" and Moving Target Range	General Purpose Machine Gun--M1919 Machine Gun (.30 caliber) and M60 Machine Gun (7.62mm)
Bayonet Course	No ammunition
Target Detection Course	No ammunition
Artillery Firing Points	105mm and 155mm Howitzers, and 37mm subcaliber device
Mortar Training Shell Course	60mm and 81mm full size practice training devices
Practice Grenade Range	MK1A1 practice grenades
Live Grenade Range	MKII (HE) live grenades

Infiltration Course	.30 and .50 caliber machine gun
Rifle Grenade	M119A1 White Phosphorus (WP), M22 Smoke, M9A1 Anti-tank, M112 Practice, M17 Fragmentation
Rocket Launcher	2.36-inch Anti-tank M6, Practice M741, WP, Smoke; 3.5-inch HEAT M29, Practice, WP, Smoke Rockets
PRI Circle	Preliminary Rifle Instruction--no ammunition
TF-1 25M	.22 caliber, .30 caliber, .50 caliber, 7.62mm--small arms used in record firing and machine gun firing
Artillery Firing Points 3 and 4--southwest of Infiltration Course	105mm and 155mm Howitzers
Free Firing .30 caliber Machine Gun Range	.30 caliber Machine Gun. Variety of scattered targets.

Sources: Office of Post Engineer, Vancouver Barracks 1958b (PLATE 11);  
Post Engineer, Vancouver Barracks 1958c (PLATE 12); 1958i and  
1958j (Not shown as Plates)  
~~War Department 1959 (PLATE 8)~~

#### 4.4.4 1970 THROUGH 1981

RANGE IDENTIFICATION	ORDNANCE POTENTIALLY USED
Mortar Positions 1-5	4.2-inch, 60mm, and 81mm Mortars
Artillery Positions 1-4	105mm and 155mm Howitzers

Close Combat Course	.30 and .50 caliber weapons
Night Fire, KD Range	M16 Rifle (5.56mm); M14 Rifle (7.62mm)
Pistol Range	M1911A1 Pistol (.45 caliber)
Bayonet Course	No ammunition
Mortar Training Shell Range	sub-caliber and full size training devices
Infiltration Course	.30 caliber carbine; M16 Rifle (5.56mm); M14 (7.62mm); .50 caliber machine gun
Demolition Area	A wide range of explosives and ordnance
M60 and 25M Range	.30 caliber carbine; M16 Rifle (5.56mm); M14 (7.62mm); .50 caliber machine gun
14.5 Range	sub-caliber artillery for 105mm Howitzer
LAW, sub-caliber and M203 Practice Range	LAW, Subcaliber--35mm subcal; M203 grenade launcher for 40mm grenade. M79 grenade launcher also used for 40mm grenade. 40mm grenade has canister of dye that produces an orange puff--carcinogenic
Hand Grenade Range, Live	live hand grenades--MKII; M26; M26A1; M33/67
25 Meter Range	M14 (7.62mm) and M16 Rifles (5.56mm)
M16 Qualification Range	M16 Rifle (5.56mm)
3.5-inch Rocket Range	3.5-inch rockets--HEAT; practice; WP; smoke

FBI Range	Various rifles, shotguns, and pistols
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Sources: 30th Engineer Battalion 1970a (PLATE 15); 1970b (Plate not shown); 1970c (PLATE 20).  
2d FA Battalion, 218 Arty, OR ARNG 1972a, 1972b, 1972c (Not shown on Plates).  
~~John Graham Company 1981a (PLATE 16)~~

#### 4.4.5 RANGE ADDITIONS IN 1987 AND 1991

RANGE IDENTIFICATION	ORDNANCE POTENTIALLY USED
ARF Range	M16 Rifle (5.56mm)
M-31 Field Artillery Range	14.5mm--artillery subcaliber device for 75mm, 105mm, and 155mm Howitzer
M31 TP	14.5mm--artillery subcaliber device for 75mm, 105mm, and 155mm Howitzer

Sources: Johnson Braund Design Group, Inc. 1987c (PLATE 17)  
~~54th Engineer Detachment 1991 (PLATE 21)~~

#### 4.4.6 UNDATED MAPS

RANGE IDENTIFICATION	ORDNANCE POTENTIALLY USED
Tactical Training Areas L1-L15	smoke, riot control agents, and vehicular support
Training Areas 1-18	smoke, riot control agents, and vehicular support
Artillery Firing Points 1-4	105mm and 155mm Howitzers

Mortar Position 1 (4.2-inch)	4.2-inch Mortar--HE, smoke, and illuminating
Mortar Position 2 (81mm)	81mm Mortar--HE, smoke, and illuminating
Mortar Positions 3 and 5 (#4 not located)	4.2-inch, 60mm, and 81mm Mortars--HE, smoke, and illuminating
Demolition Areas 1 and 2	A wide range of explosives and ordnance
Close Combat Course	M1 Rifle (.30 caliber); .30 caliber machine gun; .50 caliber machine gun
Bayonet Course	No ammunition
Pistol Range	M1911 (.45 caliber); M9 (9mm); .38 Special
Night Fire Range	M1 Rifle (.30 caliber); M14 (7.62mm); M16 (5.56mm)
Known Distance and Train Fire Range	M1 Rifle (.30 caliber); M14 (7.62mm); M16 (5.56mm)
Impact Area	Potentially contaminated by virtually all ordnance mentioned in this report.
CIB Course	Probably EIB Course--Expert Infantrymen Course--no firing
Gas ID	Detonating Gas ID Sets
PTC Course	Practice Training Combat Course--possibly used blank ammunition
25 Meter and Machine Gun Range	M1 Rifle (.30 caliber); M14 (7.62mm)
Hand Grenade, Practice	Practice Grenades
Hand Grenade, Live	Live Hand Grenades
3.5" Rocket Range	3.5" Rockets

Source: An undated map extracted from "The 6th U. S. Army Real Property Utilization Report (March 1972)" (n.a. n.d.f) (PLATE 19).  
An undated map found at the Fort Lewis Real Estate Office (n.a. n.d.g) (PLATE 18).

## **4.5 INTERVIEWS**

None of the people interviewed were aware of chemical training occurring at Camp Bonneville or of a Mustard Training Area referenced in historical documentation. APPENDIX C contains the following and additional interviews. However, a brief summary of a select few interviews follows:

### **4.5.1 WARREN FJELDOS, ASSISTANT TO JERRY CUMMINGS, RANGE CONTROL OFFICER**

He wasn't aware of any ordnance being found during the rehabilitation of the ranges or the installation of a gas line.

### **4.5.2 BILL GRANEY, CENWS**

A 2.36" Rocket was recently found near the Sewage Treatment Facility and a Boy Scout found a "live 105 round". Currently, a UXO avoidance contractor (Environmental Chemical Corporation) is working at Bonneville.

### **4.5.3 JERRY CUMMINGS, FACILITIES MANAGER AND RANGE CONTROL OFFICER**

Jerry was interviewed twice--once on 11 March 1997 and again on 13 May 1997 to verify locations of ordnance found and ranges not previously identified. Locations of ordnance items found and ranges not specified on any historical maps are denoted on a map attached to the interview in APPENDIX C

- No live artillery firing since 1968. Since 1968, only 40mm Grenades and some LAW Rockets have been fired.
- In 1982/83 some kids found some 40mm grenades. A live/HE 40mm grenade was found on edge of the road by Range 5 and by the creek near Range 8 (both ranges are on the map "Camp Bonneville Special"). Ordnance found

- consists of: 105mm, 155mm, 40mm Grenades, 2.36" Rockets, 3.5" Rockets, and LAW Rockets. He also stated that what he believes was a phosphorous grenade deteriorated and detonated on its own. 4.2-inch mortars have also been found near the FBI (he drew the location and safety fan for this range) and Combat Pistol Range. 95% of the ordnance items found have been found outside the impact area. However, they don't really go looking for UXO in the impact area.
- Canadian and British Prop Aircraft fired into the impact area in the early 1950's. Could have possibly used .30-cal and .50-cal machine guns and 20mm. Fired .50-cal all over the installation. Also had vehicles which were used by tanks for targets. Knows of one on a .50-cal range. Most of this impact area is where the FBI Range is now. There was a tank target on TA5 near the creek and gas line. The National Guard Tank Battalion used this in the 1960's time frame. The target for these tanks was located in TA7 just south of the gas line.
  - There were only designated areas for live firing. The Training Areas were used for maneuvers, pyrotechnics (some were simulators), and practice mine fields (no designated area).
  - Found a lot of .30-cal spent ammunition, .30-cal clips (entire belts) in the dump by the Sewage Treatment Facility. Land owner ¼ to ½ mile outside the east boundary claims that artillery killed his horse (date unknown). A woman north of Killpack Cantonment (north of TA12) found a mortar round about 3-4 years ago. Several .50-cal found south side of Camp Bonneville.
  - He is familiar with the practice of burying powder charge bags at artillery firing points. But he doesn't know if they did it at Bonneville.
  - EOD has destroyed many different items all over. Demolition Area #2 has been used once since 1976. Demolition Area #1 has been used by the Air Force and Army EOD, Police Bomb Squad, and whoever else needed it. Class C Fireworks were burned in trench and covered up when finished. Range Limit set at 4-lbs on Demo #1 in 1980's. This was dropped to ¼-lb in 1988. The largest items Air Force destroyed in #1 were rocket motors. They also burned rocket propellant. This was common practice for destroying rocket motors. FBI buried weapons southwest of Demo #1. They dumped acid on these, then burned.
  - Doesn't recall any chemicals being buried.
  - Blew Claymore Mines on Demo Areas and Grenade Ranges.
  - He identified the locations of three areas not identified on any map where personnel trained with 14.5mm. These are located within TA9 and TA8

- He identified an area near the sewage treatment facility where an endangered plant species exists.
- He provided me with the names and numbers of two people, Karen Swenson and Janet Renfro, who had found ordnance on Karen's property north of the installation.

#### 4.5.4 JANET RENFRO

Janet found an item on Karen Swenson's, her Niece, property north of Camp Bonneville near Little Elkhorn Mountain. While at the RAB on March 12, 1997, we had talked to Janet and Karen about this item. It was silver colored plastic, cone-shaped and had a black tube coming from the center of it. Based only on the description and a sketch, the Safety Officer could not determine what the item was. It was buried in the ground when she came across it. After digging it up and taking it to Camp Bonneville, the item was tossed into the woods. She does not know where it is. She and Karen have not found anything else on their property or know of anyone else around the installation finding anything.

#### 4.5.5 AIR NATIONAL GUARD, PORTLAND AIRPORT, OR SSGT SAVY AND MSGT BILL ANDERSON

Members of the ANG unit had used the installation and the Demolition Range for training and for destroying 20mm ammunition, 2.75-inch rockets, at least one Aim 7 Missile, and other unserviceable ammunition. The rocket motors were destroyed by burning and the warheads were destroyed by detonation. It is possible that unconsumed propellant is present on the range. Automobiles, railroad rails, and other objects were brought onto the range for explosives training. Also disposed of on the range were explosives and confiscated fireworks.

MSGT Anderson recalled only two incidents the unit was called in for. These were for a stokes mortar, which ended up being sand-filled, near the picnic tables and another mortar (location unknown).

### **4.6 PHOTOGRAMMETRY AND MAPPING**

#### 4.6.1 MAP ANALYSIS

Lacamas Creek, WA 1990 and Larch Mtn., WA 1986 (Provisional Edition) USGS



7.5' quadrangles:

These topographic quads show planimetric and topographic features of Camp Bonneville Military Reservation. The few roads through the camp and the layout of the buildings at Camp Killpack and Camp Bonneville are depicted. These cantonments are located near and along Lacamas Creek on the south slope of Little Elkhorn Mountain. Across Lacamas Creek, the terrain rises steeply to the summit of Little Baldy (elevation 1,452 feet) in the southeast and gradually up Munsell Hill (elevation 496) in the southwest. A discrepancy between the two quads appears along their border in that the reservation boundary does not match on the quads. On the Lacamas Creek quad, the boundary excludes Section 36 while the Larch Mountain quad includes Section 36. On subsequent maps, Section 36 is usually included but labeled as "Leased."

Real Estate, Camp Bonneville, dated November 1994 (PLATE 2):

This real estate map shows the boundary of Camp Bonneville and current easements, leases, licenses, and permits.

Real Estate, Camp Bonneville, dated November 1989 (PLATE 3):

This real estate map shows the tracts of Camp Bonneville Military Reservation. A table lists the owners, acreage of each tract, and the instrument and date of the Army's acquisition of each tract.

Real Estate Map of Camp Bonneville, dated March 1945 and revised January 1964 (PLATE 4):

This map shows the real estate tracts that make up Camp Bonneville, the size and vendor of each, and date and method of acquisition. Locational features include township, range, and section lines as well as streams and roads. Also listed are the total acreage acquired (3860.56), acres owned by W.D. (3020.56), acres leased by W.D. (840.00), total acres disposed of (20.00), and acres leases terminated (20.00).

Cantonment Plans, dated December 1983 (PLATE 5):

This large scale plan of the two cantonment areas depicts the primary electrical distribution. The buildings are numbered but they are not described.

Camp Bonneville, 1957 Timber Harvest and Reforestation, dated February 1957 (PLATE 6):

This map of the camp shows such ordnance related features as a rifle range and its impact area, pistol range, an unidentified range, and a machine gun

range near the main gate. The area along Lacamas Creek is labeled "Contaminated Area." The type of contamination is unknown.

Engineer Troop Training Projects, Camp Bonneville Military Reservation, dated May 1958 (PLATE 7):

This map shows proposed projects for the reservation, including an airstrip near the main gate and the clearing of contaminated areas along Lacamas Creek. Also identified is a 1000" range, a rifle range, a pistol range, and a demolition area.

Camp Bonneville General Site Map, dated July 1948, revised December 1959 (PLATE 8):

This is a large scale map showing the cantonments and ranges just south and east of Camp Bonneville cantonment and parade ground. The buildings at both cantonments are all numbered though not described on this map. Firing lines and targets are depicted. Ranges identified are a submachine gun range, pistol range, rifle range (with firing lines and target butt), free firing .30-cal MG range, and 1000" .30-cal MG range.

Topographic Map, Camp Bonneville, Clark County, Washington, dated 1926 (PLATE 9):

This topographic map depicts the Camp Bonneville cantonment, several private residences located on site, and two ranges. A rifle range is located south of Bonneville Cantonment and extends across Lacamas Creek and the area later known as the parade ground. A machine gun range is depicted in the extreme southwestern corner of the site and extends from near the boundary on the south slope of Munsell Hill, across Lacamas Creek and its floodplain to the foot of Bald Mtn. This is the only map that shows this machine gun range.

General Layout, Camp Bonneville A-A Range, dated May 28, 1943 (PLATE 10):

This map shows both cantonments, the infiltration course, rifle range, pistol range, 1000" range, and anti-aircraft range (500" miniature). Within the anti-aircraft range, four targets are depicted: overhead target, parachute target, climbing and diving target, and horizontal target.

Site and Building Use Map, Camp Bonneville Military Reservation, dated March 1958 (PLATE 11):

Numerous ranges and impact areas are shown on this map of the camp

along with roads, trails, and buildings in the cantonments. Ranges and training areas identified include practice and live grenade ranges, infiltration course, mortar training shell course, target detection course, bayonet course, 1000" range and moving target, record firing range, field firing range, rifle range pistol range, sub-machine gun range, demolition area, an artillery firing point, and artillery impact area. An insert shows the camp's relation to Portland, Vancouver Barracks, and the Columbia River.

Topographical Map of Camp Bonneville, Wash., Firing Range Sites, dated December 1958 (PLATE 12):

Ranges and training course identified on this map include those depicted on PLATE 11 as well as two additional artillery firing points, rifle grenade range, rocket launcher range, TF-1 25M range, two TF record fire ranges (one north and one south of the rifle range), TF field fire, and PRI Circle. The airstrip is depicted near the main gate.

Camp Bonneville Reservation Boundary and Range Map, dated December 1959 (PLATE 13):

This map repeats many of the features depicted on the previous two maps.

Topographic Map, Camp Bonneville Military Reservation, dated April 1970 (PLATE 14):

Depicted on this map are the two cantonment areas, a bayonet qualification course, night fire range, close combat course, mortar training shell range, practice and live hand grenade ranges, 25 meter and machine gun range, and infiltration course.

Topographic Map, Camp Bonneville Military Reservation, dated April 1970 (PLATE 15):

In addition to the ordnance related features listed above on PLATE 14, five mortar positions, four artillery firing points, a pistol range, and a demolition area are depicted on this map. Range fans are added to all ranges. The four artillery firing points are located in a different area than those on previous maps. Artillery firing point #2 is identified just north of #1 on Munsell Hill. Firing points #3 and #4 are located north of the two cantonments.

Camp Bonneville, Reservation Map, dated November 1979, revised August 1981 (PLATE 16):

This map depicts ranges and their safety fans throughout the camp. An ammunition and explosive facility is located east of Bonneville cantonment and north of the Known Distance range.

Range Fans - Coverages, Camp Bonneville, Washington, dated 13 August 1987 (PLATE 17):

This map depicts several ranges and ordnance related features, including an Automated Record Fire (ARF) Range, a Basic 25 Meter Firing Range (ZERO), a Combat Pistol Range, an M-31 Field Artillery Range, an M-203 Grenade Launcher (HE) Range, and a field artillery range target area.

Camp Bonneville, undated (PLATE 18):

This map lays out the various ranges, tactical training area, artillery firing points (FP), and mortar positions (MP) around the camp. Features include a Gas ID, EIB course, PTC course, bayonet course, 4.2 inch mortar (MP 1), 81mm mortar (MP 2), two demolition areas, a larger impact area, practice and live hand grenade ranges, pistol range, night fire range, known distance and train fire range, 3.5" rocket range, and 25 meter and machine gun range. The camp is divided into 15 areas (labeled L1 through L15) for tactical training. The size in acreage and type of training occurring in each training area are also noted.

Camp Bonneville, undated (PLATE 19):

Similar to PLATE 18 except the training areas are divided into 18 areas instead of 15 and labeled TA #1 through TA #18 instead of L1 through L15.

Topographic Map, Camp Bonneville Military Reservation, dated April 1970 (PLATE 20):

This map shows the 18 training areas (TA1 through TA18) around the reservation and various ranges throughout the camp. TA9 includes a 14.5 range and TA15 has a LAW, Sub Cal. & M203 practice range. Other features include a 25 Meter Range, M60 & 25M Range, hand grenade, and demolition area. A building adjacent to the M16 qualifying range is labeled Ammo Storage.

Camp Bonneville Special, dated February 1991 (PLATE 21):

This topographic map shows the roads, buildings, 18 training areas, demolition area, ARF range, 25 Meter range, M203/LAW TP range, Combat Pistol range, hand grenade, 25/10 meters range, and M31 TP range. A building adjacent to the Camp Bonneville cantonment is identified as a gas chamber.

Topographical Map of Camp Bonneville Military Reservation, dated December 1957 (no plate):

This topographic map of the camp shows such ordnance related features as a rifle range, pistol range, demolition area, and a 1000" machine gun range. Also depicted are roads, trails, buildings, creeks, and other natural features.

Topographical Map, Camp Bonneville Military Reservation, dated August 1958 (no plate):

This map shows the same features as the previous maps: topographic features, various ranges, roads, trails, and cantonment buildings.

Topographical Map, Camp Bonneville Military Reservation, dated November 1958 (no plate):

Very similar to the December 1957 map, this one adds a few ranges to the topographic features depicted: a rifle grenade range, a rocket launcher range, and an artillery impact area.

Modernization of Firing Ranges, Camp Bonneville, Wash., dated April 1967 (no plate):

This is a large scale map of the Camp Bonneville cantonment and rifle range. Detailed drawings of target berms and range layout are also included on the map.

CERFA Map, Camp Bonneville Military Reservation, dated February 1996 (no plate):

This map shows the location of several firing points and labels some features with their CERFA category definitions.

#### 4.6.2 AERIAL PHOTO INTERPRETATION

Government and contractor personnel conducted an aerial photography search to find available imagery which covers the site. Generally, the search was limited to

imagery with less than 1:24,000 scale and provided stereo viewing, but acquired others as needed. Photographic analysis and land-use interpretation were performed using the following photographic sources:

<u>PHOTOGRAPHY DATE</u>	<u>APPROXIMATE SCALE</u>	<u>SOURCE</u>	<u>FRAME IDENTIFIERS</u>
12 Oct 1940	1:20,000	DIA	92-103 126-130 159-163
21 Apr 1944	1:25,000	DIA	50-54 87-90 102-105
27 Jul 1951	1:23,600	EROS	GS-QO 156-161 GS-QO 201-206
04 Jun 1960	1:20,000	ASCS	CWA 43-48 CWA 90-95 CWA 114-119
27 Jul 1963	1:18,000	Fort Lewis Forestry Service	SW63 16-20
19 Feb 1967	1:20,000	ASCS	CWA-X 70-73 CWA-X 108-111
05 Jun 1978	1:30,000	Fort Lewis Forestry Service	SW78 7-10
24 Sep 1985	1:4,800	CoE, Seattle District	S85089-1 1-11 S85089-2 1-13
22 Jul 1988	1:13,400	Fort Lewis Forestry Service	SW88 145, 147, 150
05 Jun 1989	1:13,100	Fort Lewis Forestry Service	SW88 43, 45, 47

08 Sep 1989	1:40,000	ASCS	NAPP 110-112
15 Jul 1990	1:40,000	ASCS	NAPP 27-29

The photography was referenced using the Lacamas Creek, WA 1990 and Larch Mountain, WA 1986 edition USGS 7.5' quadrangles. Historical maps found during research were also referenced to determine specific features identified on the aerial photos. The Fort Lewis Forestry Service photos were copies of original photos and provided only limited stereo coverage of the site. For these reasons, only the larger ranges and details could be identified. When possible, these photos were used for confirmation of features identified on the other photos.

The 1940 photos show nearly all of the Camp Bonneville Military Reservation (PLATE 22), including the Killpack **(1)** and Bonneville **(2)** cantonments in the area north of Lacamas Creek and on the south slope of Little Elkhorn mountain. A slight gap exists in the photo coverage east of the Camp Bonneville cantonment. This gap begins south of the rifle range and extends east to the reservation boundary but does not cover any ordnance related features. The cantonments lie along the main road through the reservation; Killpack is about a third of a mile east of the entrance and Bonneville is about a half mile past Killpack. Killpack cantonment consists of about 15 barracks and support buildings and sits in an area about 650 feet by 300 feet; a few additional support buildings are nearby in an area about 450 feet by 150 feet. Unimproved tracks and trails radiate from the Killpack cantonment indicating training activities or maneuvers take place around there, particularly along Lacamas Creek to the south. The Bonneville cantonment consists of several barracks, two tent areas, and support buildings covering an area approximately 550 feet by 550 feet about 500 feet north of Lacamas Creek. South of the creek a rifle range **(3)** is seen with a target berm 300 feet wide and firing lines at 600 feet, 900 feet, and 1500 feet. Several small buildings are located at the western end of the range. A quarter mile east of the cantonment along the road, a graded area approximately 100 feet by 150 feet is a pistol firing range **(4)**, as indicated on later maps. Another location just south of the Bonneville cantonment (identified as a parade ground **(5)** on some maps) shows evidence of training or maneuvers. Further downstream along Lacamas Creek, several ditches cross and drain the creek's floodplain. Later maps (and photos) of this area along the creek identify the location of several firing ranges.

The 1944 photos (PLATE 23) show the buildings at Killpack cantonment **(1)** are the same as in 1940 though a large ground scar **(6)** approximately 400 feet by 300 feet

borders the area on the west side. Ground scars **(6)** are also seen further west at the entrance to the military reservation. New roads lead to a few new buildings about 450 feet north of the main Killpack cantonment. Numerous unimproved

roads and trails appear around the Killpack cantonment, mostly leading to the south. The Bonneville cantonment **(2)** also appears the same in the 1944 photos and ground scars south of the cantonment on the parade ground indicate activity at the camp. The pistol range **(4)** carved out of the hillside can still be seen along the road about a quarter mile east of the Bonneville cantonment. An additional firing line has been established at 300 feet on the rifle range **(3)**. Another graded area and probable firing range **(7)** can be seen south of the Bonneville cantonment and just south of Lacamas Creek. The hillside has been cut for a length of about 400 feet for this range. This firing range is identified on later maps as being a 1000" machine gun range. Down Lacamas Creek approximately two thousand feet from the pond is a graded area about 1,000 feet long and 150 feet wide **(8)**. This is identified as a mortar training range on a 1958 map. Further down Lacamas Creek approximately a half mile, another range **(9)** approximately 150 feet by 150 feet can be seen. This is identified as an infiltration course on the 1958 map. West of the mortar training range, a clearing **(10)** provides a possible location for artillery firing point #1 (45° 41' 09.04" N latitude, 122° 25' 27.74" W longitude).

The Killpack **(1)** and Bonneville **(2)** cantonments appear the same in the 1951 photos (PLATE 24) as in the 1944 photos. A long ground scar **(6)** approximately 1,250 feet by 40 feet runs parallel to the road from the entrance to the Killpack cantonment. This scarred area is identified as an airstrip on a 1958 map. Fewer tracks and trails can be seen in this area through the vegetation though a long, narrow cleared strip of land **(11)** approximately 1,200 feet by 50 feet south of Killpack is identified as a machine gun range on a 1957 map. South of the Bonneville cantonment, two graded areas **(7)** identified as 1000" machine gun ranges on later maps appear next to the rifle range and south of Lacamas Creek. Another line nearly 600 feet long between the rifle range and the 1000" ranges appears to be another firing line **(12)**. A graded and cleared area **(9)**, now approximately 275 feet by 200 feet, near southern part of camp is identified as the infiltration course on 1958 and 1959 maps. Artillery firing point #1 **(10)** is still visible west of Lacamas Creek.

By 1960, while the Killpack and Bonneville cantonments are still the same (PLATE 25), new ranges appear east and south of Bonneville and along Lacamas Creek. At Killpack cantonment **(1)**, the airstrip **(6)** is enlarged and another graded



area is just east of the cantonment. The machine gun range **(11)** south of Killpack does not appear to be used at this time. East of Bonneville cantonment **(2)** along the road, the pistol range **(4)** and a small building can be seen in a clearing approximately 60 feet by 200 feet. A quarter mile east of the pistol range, an unimproved road leads north to a clearing about 300 feet wide with a sub-machine gun firing range **(12)**. Further east another 500 feet, the road forks and the left (northern) fork leads to the demolition area **(13)** a half mile up the road. South of the pistol range a short unimproved road leads to an area of ground scars **(14)**. A 1958 map identifies this area as TF Record Fire. Six small buildings appear around the pond south of the Bonneville cantonment. The firing ranges **(7)** across Lacamas Creek are identified on 1958 and 1959 maps as 1000" machine gun ranges. Eleven hundred feet south of the 1000" ranges a cleared area approximately 550 feet by 450 feet is identified on a 1958 map as a target detection course **(15)**. Just south of that course is the mortar training shell range **(8)**. Eight hundred feet south of the mortar training shell range, a practice hand grenade area **(16)** is identified on the 1958 map and visible in the photos as an area approximately 200 feet by 250 feet. Approximately 800 feet east of the practice grenade range, a live grenade range **(17)** can be seen in a clearing about 100 feet by 125 feet. Five hundred feet south of the live hand grenade area, the rocket range **(18)** is visible as a clearing approximately 300 feet by 1,000 feet. The infiltration course **(9)** adjacent to the rocket range is still in use there. Of the four artillery firing points shown on maps of this time frame, #1 **(10)** and #2 **(20)** can probably be located near Munsell Hill (45° 41' 10.65" N latitude, 122° 25' 27.81" W longitude). Firing points #3 and #4 cannot be positively identified on the photos. The 1959 map identifies an area in the mountains to the east as an artillery impact area **(19)**. This 3,300 foot by 1,300 foot area can be clearly seen in the photos approximately 1,000 feet east of the rifle range.

In 1967, the Killpack **(1)** and Bonneville **(2)** cantonments (PLATE 26) as well as the various firing ranges remain the same as in the previous years. All the firing ranges along Lacamas Creek identified and measured in the 1960 photos are still being used in 1967. The airstrip **(6)** west of Killpack cantonment now extends from the reservation's main gate to the cantonment and is about 100 feet wide. Several maps dated soon after these photos depict a close combat course **(21)** located just east of the demolition area in the northern portion of the site. This close combat course cannot be seen in these photos (or any others) through the trees and other vegetation so it is unclear when the course was established. Maps undated depict a second demolition area **(32)** just west of the artillery impact area **(19)**. This

demolition area cannot be identified on these photos.

The 1985 photos (no plate) cover that part of Camp Bonneville along Lacamas Creek and the main road through the camp. The airstrip **(6)** is still there though a ridge 250 feet long in the middle of the airstrip effectively narrows its width to only about 50 feet. An unimproved road leads south from Killpack cantonment **(1)** to artillery firing points #1 **(10)** and #2 **(20)**. Numerous tire tracks can be seen throughout this area. East of the firing points and across Lacamas Creek remains the mortar training shell range **(8)**, now 550 feet by 150 feet. Only two buildings remain around the pond on Lacamas Creek south of Bonneville cantonment **(2)**. The 1000" machine gun ranges **(7)** south of the pond appear overgrown with vegetation and the berms have been removed. An undated map identifies an area just south of this range as a gas ID area **(22)**. Nothing can be seen in this area in the photos through the dense vegetation. Just 100 feet northeast of the former 1000" machine gun ranges is a pistol range **(23)**, approximately 250 feet by 50 feet. Another 400 feet to the northeast is the rifle range **(3)**. The firing lines remain at 300, 600, 900, and 1500 feet and numerous pop-up targets are now spread throughout the range. Just north of the rifle range across Lacamas Creek a fenced area **(25)** approximately 200 feet by 80 feet can be seen. This fenced area with three small earth-covered bunkers is identified as an ammunition and explosive facility on a 1981 map. The pistol range clearing **(4)** east of Bonneville cantonment is still there. Trenches and berms are still visible in the sub-machine gun firing range **(12)** east of the pistol range. Craters and other holes are visible in the demolition area **(13)** to the north. At the extreme southern end of the camp east of Lacamas Creek, numerous vehicular tracks circle around and lead to a parking area. This could be the possible location of artillery firing points # 3 (45° 40' 28.57" N latitude, 122° 25' 36.90" W longitude) and #4 (45° 40' 30.78" N latitude, 122° 25' 32.06" W longitude) when they were located in this area. North of these tracks, a 25 meter and machine gun range approximately 250 feet by 50 feet is located next to the rocket range **(18)** as identified on a 1970 map. Further north the live **(17)** and practice **(16)** hand grenade courses can still be seen.

The Killpack **(1)** and Bonneville **(2)** cantonments are still the same in the 1990 photos (PLATE 27.) A night fire range **(26)** has been added adjacent to the southern side of the rifle range **(3)**. This addition increases the width of the range to approximately 500 feet for most of the length of the rifle range. Also, a pistol range **(24)**, bermed on all four sides about 150 feet by 100 feet, now stands at the

west end of the rifle and night fire ranges. Artillery firing points #3 ((**27**) 45° 41' 36.99" N latitude, 122° 25' 57.05" W longitude) and #4 ((**28**) 45° 41' 47.61" N latitude, 122° 25' 81.00" W longitude) can be clearly seen in their new locations north of the cantonments. Artillery firing points #1 and #2 have a new location on Munsell Hill (45° 40' 57.86" N latitude, 122° 25' 39.98" W longitude; and 45° 41' 02.12" N latitude, 122° 25' 37.97" W longitude, respectively) and can be seen as a large clearing (**36**) in the photos. A new range approximately 1,300 feet by 125 feet can be seen in the photos just below the pond and is identified on a 1987 map as a grenade launcher range (**29**). Another new range (**30**), identified as a combat pistol range on the 1987 map, can be seen through the vegetation about 1,000 feet south of the grenade launcher range. About 250 feet south of the mortar training shell range (**8**) is the field artillery range firing area (**31**). According to a map dated 1970, a 25 meter and machine gun range is now located near the rocket range (**18**) though the 25 meter and machine gun range cannot be seen separate from the rocket range. A map dated 1991 depicts a gas chamber (**32**) adjacent to the Camp Bonneville cantonment. This building is on many of the maps and photos though its function has never been determined or identified. A possible location for the second demolition area (**33**) is shown just west of the impact area (**19**). A map dated August 1987 depicts an M-31 field artillery range target area (**34**) near the southern end of the mortar training shell range. This area is clearly seen on these photos. Maps dated from the 70's identify 6 mortar positions throughout the camp though they cannot be clearly identified on the photos. The coordinates of the mortar positions determined from a map are:

- #1- 45° 41' 44.12" N latitude, 122° 25' 13.90" W longitude;
- #2 - 45° 42' 01.51" N latitude, 122° 24' 15.46" W longitude;
- #3 - 45° 41' 52.96" N latitude, 122° 24' 34.47" W longitude;
- #4 - 45° 41' 27.15" N latitude, 122° 24' 50.97" W longitude;
- #5 - 45° 41' 19.12" N latitude, 122° 24' 50.38" W longitude; and
- #6 - 45° 42' 06.37" N latitude, 122° 24' 26.40" W longitude.

## **5.0 SITE INSPECTION**

After reviewing and consolidating all historical information obtained during research, a site inspection was conducted. The site inspection included only visual and non-intrusive methods of inspection. The team followed a site safety and health plan (SSHP) prohibiting digging or handling of potential OE/CWM. The SSHP defined standard operation procedures to ensure safety and prevent accidents. APPENDIX G contains a copy of the SSHP. The inspection team consisting of Rochelle Ross (Team Leader), Randy Fraser (Safety Officer/UXO Specialist), and David Tajkowski (Historian), U.S. Army Corps of Engineers St. Louis District personnel, conducted a site survey of Camp Bonneville the week of 12 May 1997.

Prior to the site inspection, we met with Jerry Cummings, Warren Fjeldos, and Grady May. We discussed our plan for the week, reviewed the locations of found ordnance, located three M-31 Artillery (14.5mm subcaliber) ranges not identified on any maps, located the FBI Range, identified the approximate fence line around the artillery impact area, and received names and phone numbers of two people who found ordnance on their property.

We began our inspection in the southern leased area where we went to Bald Mountain and looped around. The road on the southern boundary was washed out just west of the pipeline crossing, therefore we began walking at this location. The area is covered with trees and heavy underbrush. Along the path we found several 5.56mm and 7.62mm blank casings. We also found a spoon from a practice grenade.

We walked through the M-31 Artillery Ranges located in TA8 and TA9 that Jerry identified earlier this morning (identified as #23, #24, and #25 on PLATE 29). About 20 to 30 yards from the road adjacent to TA9 and halfway between the road adjacent to Camp Killpack and Lackamas Creek, we located a buried landfill, approximately 20 feet in diameter. While walking through one of the three 14.5mm ranges (also identified as # 9 on PLATE 29) in TA8, we found an expended smoke grenade, a plastic cap for a 40mm practice grenade (debris), a tail from both a 35mm subcaliber rocket and a 22mm subcaliber cartridge. We continued south to another M-31 Field Artillery Range (identified as # 10 on PLATE 29) with three concrete firing positions. While walking downrange, we detected several subsurface anomalies with the magnetometer.

We traveled to the Grenade Ranges (Live Hand, Practice Hand, and Rifle) where we walked through the Live and Practice Ranges. We were unable to find any remnants of the Rifle Grenade Range. We traveled along a road which cuts through the Rifle Grenade Range and Rocket Range and walked into what was identified as the impact area (overgrown and heavy underbrush) of the Rifle Grenade Range. However, we didn't find any evidence of a range.

We continued south to the Rocket Range (identified as # 8 on PLATE 29) and 25 Meter Machine Gun Range (identified as # 37 on PLATE 30). We found remnants of lead from small arms bullets; but no remnants of a rocket range.

Next we went to the Infiltration Course (identified as # 26 on PLATE 30), then to the impact area of the M-31 Field Artillery Range. Within the M-31 Range, we came across what appeared to be an old homestead made out of stones.

After leaving the M-31 Range, we traveled through TA6, then north to the Artillery Firing Points, east to the Mortar Firing Position (identified as # 6 on PLATE 29) and Pistol Range (identified as # 39 on PLATE 30) located within TA12, and Submachine Gun Range (identified as # 29 on PLATE 30) located within TA13. The only remnants of the Pistol Range is what appeared to be a man-made berm, currently covered with small trees. We found expended blank 5.56mm and 7.62mm casings, and unidentified blank cartridges similar in size to the 5.56mm, possibly foreign, within the Submachine Gun Range. Before finishing up for the day, we went through the Bonneville Cantonment area and located the two gas chambers.

The evening of 13 May 1997, phone calls were made to Karen Swensen and Janet Renfro. Janet had found a possible ordnance item on Karen's property north of the installation near Little Elkhorn Mountain. The summary of this interview is located in APPENDIX C.

We continued the site inspection on Wednesday 14 May at the Demolition Range Number 1. The bridge across the creek south of this range is not safe to drive on, therefore we began walking at this point. We walked through the demo range and found ordnance and other types (vehicle) of debris. Ordnance debris included time fuzes, small arms, rifle grenades, grenade spoons, etc.

East of the demo range, we found the location of the Close Combat Course (identified as # 34 on PLATE 30). The control tower (the building number looked

like is was T-1886) had collapsed. We didn't come across any ordnance within the range area.

We continued to the northern leased area where we walked north along the western boundary, east along the northern boundary, then south and west through the area to the point of beginning. The roads identified on the map are more like paths and the area off of these paths is dense forest with extremely thick underbrush. The area is also very steep and rocky in some locations.

We traveled west to the mortar position in TA13 adjacent to the Submachine Gun Range. We next stopped at the Ammunition Storage Area. Located within the storage area are three bunkers. The western bunker is locked and contents inside consist of black powder and rifle powder (smokeless). The other two bunkers are open and empty. After leaving the storage area, we went to the Sewage Treatment Facility where a 2.36" Rocket was found and destroyed by Army EOD. The debris which remains consists of the tail section.

We went to the small arms ranges firing positions south of the Sewage Treatment Facility and east of Bonneville Cantonment and continued on into the small arms impact area. We traveled to the location where the stokes mortar was found and destroyed in the 1980's, the mortar position south of the Bonneville Cantonment, and the FBI Range. Expended tear gas grenades and 40mm, as well as small arms casings, were found scattered on the FBI Range. From the backstop of the FBI Range we looked for the "Gas ID" area identified on one of the historical maps. We didn't find anything that resembled an area that would have been used for gas training.

We again tried to locate the Rifle Grenade Range. This time, we walked into the woods from the north and west instead of the south. Again, we didn't find any remnants of this range.

After trying to locate the Demolition Area No. 2, (we were told in March this range was under water) we completed the site inspection at the entrance to the Artillery Impact Area.

We didn't come across any unexploded ordnance. In addition to OE items already identified, 5.56mm and 7.62mm blank cartridges were found throughout most of the installation. However, like the majority of the installation, it is covered with heavy

underbrush and trees, and therefore, is extremely hard to see the ground.

## **6.0 AREAS OF INTEREST**

PLATE 33 identifies Areas Recommended for Further Action with respect to OE based on historical documentation reviewed, interviews, and a site inspection. This area covers all ranges and their safety fans, mortar positions, artillery firing points, demolition areas, impact area, and an ammunition storage area. Also included in this area is the sewage treatment facility where a 2.36" rocket was uncovered recently. The total acreage identified consists of approximately 3225 acres, of which 725 acres is leased from the State of Washington.

The types of ordnance which may be present include small arms ammunition, 37mm - 155mm artillery rounds, 4.2 inch - 81mm mortars, 2.36" and 3.5" rockets, and grenades (hand and rifle). Training devices may also be found throughout the post.

Items such as small arms ammunition, rifle grenades, and rockets could be found on the southeastern leased parcel. Ordnance which may be found in the northeastern leased parcel consists of artillery rounds--up to 155mm, mortars--up to 81mm, small arms ammunition, and rockets. Training items could be found in both parcels.



## APPENDICES

A	REFERENCES
B	ACRONYMS
C	INTERVIEWS
D	PRESENT SITE PHOTOGRAPHS
E	HISTORICAL PHOTOGRAPHS
F	HISTORICAL MAPS/DRAWINGS
G	SITE SAFETY AND HEALTH PLAN/SITE INSPECTION REPORT
H	ORDNANCE DATA SHEETS
I	REPORT DISTRIBUTION LIST

**APPENDIX A**

REFERENCES  
AND  
REFERENCES CITED

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- 1958b "Site & Building Use Map," dated 1 March 1958. Map Vault, Fort Lewis, Tacoma, WA.
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- 1958e "Mortar Training Shell Range," dated 16 May 1958. Revision of original map dated 21 May 1958. Map Vault, Fort Lewis, Tacoma, WA.
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- 1958g "Submachine Gun Dismounted Practice Course Layout & Target Control," dated 19 May 1958. Map Vault, Fort Lewis, Tacoma, WA.
- 1958h "Submachine Gun Dismounted Practice Course Plot Plan & Target Details," dated 12 June 1958. Map Vault, Fort Lewis, Tacoma, WA.
- 1958i "Topographical Map of Camp Bonneville Wash," dated December 1926. Revision of original map dated November 1958. File: Acquisition of Land (820 acres +- ) by State, 1 of 3. Real Estate Office, Fort Lewis, Tacoma, WA.

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### **Property Officer, Vancouver Barracks.**

- 1959 "Transfer of Construction," dated 12 January. File: General--Historical. Real Estate Office, Fort Lewis, Tacoma, WA.

### **Rosenburgh, Bob.**

- 1995 "Will BRAC Bite Back?" from *The Ranger*, 02 March 1995. File: Disposal--Closure of Bonneville. Real Estate Office, Fort Lewis, Tacoma, WA.

### **2d FA Battalion, 218 Arty, OR ARNG.**

- 1972a "Range Safety Areas, Sheet No. 2, KD Range, 3.5" R.L. Range, Hand Grenade Range," dated 15 March 1972. Map Vault, Fort Lewis, Tacoma, WA.
- 1972b "Range Safety Areas, Sheet No. 2, Close Combat Range and Pistol Range," dated 15 March 1972. Map Vault, Fort Lewis, Tacoma, WA.
- 1972c "Range Safety Areas, Sheet No. 3, Night Fire Range and 25 Meter MG Range," dated 15 March 1972. Map Vault, Fort Lewis, Tacoma, WA.

### **Secretary of War.**

- 1916 Correspondence to the Publisher of the *Oregon Journal*, dated 07 July, regarding the purchase of target range land. Record Group 92; Entry 1998; Box 227; File: 601.1 Vancouver Barracks. National Archives I, Washington D. C.

### **7th Infantry, Vancouver Barracks.**

- 1926 "Topographical Map," dated December 1926. Record Group 270, Box 357, File 600 Camp Bonneville. National Archives-Pacific Northwest Region, Seattle, WA.

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District, WA.

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## **APPENDIX B**

### ACRONYMS

## ACRONYMS

AA	Anti-Aircraft
AEC	Army Environmental Center
AGO	Adjutant General's Office
AP	Armor Piercing
APDS	Armor Piercing Discarding Sabot
APERS	Antipersonnel
APT	Armor Piercing with Tracer
ARF	Automated Record Fire
ASR	Archives Search Report
Aux	Auxiliary
BAR	Browning Automatic Rifle
BD	Base Detonating
BD/DR	Building Demolition/Debris Removal
BE	Base Ejection
BRAC	Base Realignment And Closure
CADD	Computer-Aided Design/Drafting
Cal	Caliber
CBDAC	Chemical and Biological Defense Agency
CBDCOM	Chemical and Biological Defense Command
CBR	Chemical, Biological, Radiological
CCC	Civilian Conservation Corps
CE	Corps of Engineers
CEHNC	Corps of Engineers, Huntsville Division
CELMS	Corps of Engineers, Lower Mississippi Valley, St. Louis District
CEMVS	Corps of Engineers, Mississippi Valley, St. Louis District
CENPS	Corps of Engineers, North Pacific, Seattle District
CENWS	Corps of Engineers, Northwest, Seattle District
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERFA	Community Environmental Response Facilitation Act
CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
CMTC	Citizens Military Training Camps
COE	Chief of Engineers
COMP	Composition
CTG	Cartridge
CSM	Chemical Surety Material
CSM	Command Sergeant Major

## ACRONYMS

CWM	Chemical Warfare Material
CWS	Chemical Warfare Service
DA	Department of the Army
DARCOM	Development and Readiness Command
DERA	Defense Environmental Restoration Account
DoD	Department of Defense
EBS	Environmental Baseline Survey
EE/CA	Engineering Evaluation/Cost Analysis
EIB	Expert Infantrymen Badge (Course)
EIS	Environmental Impact Statement
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
ERDA	Environmental Restoration Defense Account
FBI	Federal Bureau of Investigation
FS	Feasibility Study
FWS	(U.S.) Fish and Wildlife Service
GIS	Graphic Information System
GSA	General Services Administration
HE	High Explosive
HEAT	High Explosive Anti-Tank
HEI	High Explosive Incendiary
HEP	High Explosive Plastic
ILLUM	Illuminating
HTRW	Hazardous Toxic and Radioactive Waste
HTW	Hazardous and Toxic Waste
IAS	Initial Assessment Study
IRP	Installation Restoration Program
KD	Known Distance
LAW	Light Anti-Tank Weapon
MCX	Mandatory Center of Expertise
MG	Machine Gun
MG	Major General
mm	Millimeter
MT	Mechanical Time
MTSQ	Mechanical Time Super Quick
NARA	National Archives and Records Administration
NBC	Nuclear Biological Chemical
NCDC	National Climatic Data Center
NCP	National Contingency Plan

## ACRONYMS

NFS	National Forest Service
NG	National Guard
NGVD	National Geodetic Vertical Datum
NOAA	National Oceanic and Atmospheric Administration
NOFA	No Further Action
NPRC	National Personnel Records Center
NRC	National Records Center
OE	Ordnance and Explosives
OSHA	Occupational Safety and Health Administration
PA	Preliminary Assessment
PD	Point Detonating
PIBD	Point Initiating, Base Detonating
PL	Public Law
POE	Port of Embarkation
POW	Prisoner of War
PRI	Preliminary Rifle Instruction
PTC	Practice Training Combat
QASAS	Quality Assurance Specialist Ammunition Surveillance
RA	Removal Action
RAC	Risk Assessment Code
RD	Remedial Design
RG	Record Group
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROTC	Reserve Officer Training Corps
SARA	Superfund Amendments and Reauthorization Act
SCS	Soil Conservation Service
SLD	St. Louis District, Corps of Engineers
SSHOS	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
SWMU	Solid Waste Management Units
TECOM	Test Evaluation Command
TEU	Technical Escort Unit
TF	Training Field
TNT	Trinitrotoluene
TP	Target Practice
USA	United States of America
USACE	U.S. Army Corps of Engineers
USADACS	U.S. Army Defense Ammunition Center and School

## ACRONYMS

USAED	U.S. Army Engineer District
USAESCH	U.S. Army Engineering and Support Center, Huntsville, Alabama
USAF	U.S. Air Force
USANG	U.S. Army National Guard
USATHMA	U.S. Army, Corps of Engineers, Toxic and Hazardous Materials Agency
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UXO	Unexploded Ordnance
WAA	War Assets Administration
WD	War Department
WNRC	Washington National Records Center



## **APPENDIX C**

### **INTERVIEWS**

## INTERVIEWS

<u>NAME</u>	<u>AGENCY</u>	<u>PAGE</u>
Mr. Bill Graney	Project Manager for Camp Bonneville, U.S. Army Corps of Engineers, Seattle District	C-2
Mr. David Hastings	Washington State Archives	C-3
Staff Member	Southwest Washington Regional State Archives	C-4
Staff Member	Washington State Library	C-5
Staff Member	Fort Vancouver National Historic Site	C-6
Staff Member	Fort Vancouver Historical Society/ Clark County Historical Museum	C-7
Staff Member	Vancouver Community Library	C-8
SFC Bjerke	NCOIC, Vancouver Barracks	C-9
Mr. Don Davis	(Formerly stationed at Camp Bonneville)	C-10
Mr. Warren Fjeldos	(Presently stationed at Camp Bonneville)	C-11
SSGT Savy	142nd CES/CED National Guard EOD Unit	C-12
Operations NCO	53rd Ordnance Company, Yakima, Washington	C-12
Operations NCO	3rd Ordnance Battalion, Fort Lewis, Washington	C-13
Mr. Greg Parsons	Safety Specialist, U.S. Army Corps of Engineers, Huntsville	C-14
Mr. Jerry Cummings	Facilities Manager, Camp Bonneville	C-15
Mr. Ted Van Arsdol	Author of articles and books on Camp Bonneville	C-19
Mr. George Van Way	Retired Colonel (Formerly stationed at Camp Bonneville)	C-20
Ms. Janet Renfro/ Ms. Karen Swenson	RAB Co-Chairperson (Janet Renfro's Niece and RAB Member)	C-21
MSGT Bill Anderson	Air National Guard, Portland Airport	C-22
SSGT Savy	142nd CES/CED National Guard EOD Unit (follow-up interview from 14 February 1997)	C-23

**PERSONAL INTERVIEW**

NAME: MR. BILL GRANEY, PROJECT MANAGER FOR CAMP BONNEVILLE  
U.S. ARMY ENGINEER DISTRICT, SEATTLE  
PHONE: (206) 764-3494 (WORK)  
(206) 764-6795 (FAX)

DATE: NOVEMBER 4, 1996

According to Mr. Bill Graney, recently, a 2.36" Rocket was found near the Sewage Treatment Facility on Camp Bonneville. Prior to this, a Boy Scout found a "live 105 round." Currently, there is a UXO Avoidance Contractor (Environmental Chemical Corporation) working at Bonneville.

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The following comment, received from CENWS on 6/19/97, stated that, "Both rounds mentioned . . . were destroyed/demolished."

**PHONE CONVERSATION**

NAME:MR. DAVID HASTINGS  
WASHINGTON STATE ARCHIVES  
OLYMPIA, WA  
(360) 753-5485

DATE: NOVEMBER 26, 1996

David Tajkowski contacted this facility by phone from the St. Louis District Office. Mr. Hastings informed Mr. Tajkowski that his facility did not possess any records that would aid our project.

**PHONE CONVERSATION**

NAME: SOUTHWEST WASHINGTON REGIONAL STATE ARCHIVES  
OLYMPIA, WA  
(360) 753-5485

DATE: NOVEMBER 26, 1996

David Tajkowski called this archive from the St. Louis District Office. The archivists told Mr. Tajkowski that they did not have any information on Camp Bonneville and suggested that we contact the staff at both the Clark County Historical Museum and Vancouver Barracks Historical Site.

**PHONE CONVERSATION**

NAME: WASHINGTON STATE LIBRARY  
OLYMPIA, WA  
(360) 753-4024

DATE: NOVEMBER 26, 1996

David Tajkowski called the library from the St. Louis District Office. This facility has several things on the history of Ft. Lewis. Ms. Rochelle Ross and Mr. Tajkowski visited the library on 05 December 1996, but the sources had no useful information on Camp Bonneville. After looking at the library's other finding aids, we determined that it had no information on Bonneville.

**PHONE CONVERSATION**

NAME: FORT VANCOUVER NATIONAL HISTORIC SITE  
VANCOUVER, WA  
(360) 696-7655

DATE: NOVEMBER 27, 1996

David Tajkowski contacted this facility by phone from the St. Louis District Office. He was told by the staff that the only historic information this facility had concerned the frontier-era Fort Vancouver.

**PHONE CONVERSATION**

NAME: FORT VANCOUVER HISTORICAL SOCIETY/CLARK COUNTY  
HISTORICAL MUSEUM  
VANCOUVER, WA  
(360) 695-4681

DATE: DECEMBER 6, 1996

David Tajkowski called this museum from Seattle, WA. The staff was not sure if the society had any information on Camp Bonneville, but we were invited to stop by the museum and check their files.



**RESEARCH VISIT**

NAME: VANCOUVER COMMUNITY LIBRARY  
VANCOUVER, WA  
(360) 695-1566

DATE: DECEMBER 9, 1996

Rochelle Ross and David Tajkowski visited this library and went through both the library's on-line catalog and its clippings file index and found no information on Camp Bonneville.

**PERSONAL INTERVIEW**

NAME: SFC BJERKE

NCOIC, VANCOUVER BARRACKS  
VANCOUVER, WA  
(360) 694-7555

DATE: DECEMBER 9, 1996

Rochelle Ross and David Tajkowski visited Sgt. Bjerke at his office at Vancouver Barracks. According to him, Vancouver Barracks does not maintain any information on Camp Bonneville, and all useful documentation would be with the range control personnel at Bonneville. Using a topographic map, he showed us the encroachment of housing to the range areas at Bonneville. At the present time, development has extended to the border of the property leased from the State of Washington--at the end of the range fans. He could not provide any additional information concerning the location of the Mustard Training Area uncovered during our research.

**PHONE CONVERSATION**

NAME:MR. DON DAVIS

PHONE: (360) 892-4066 (HOME)  
(503) 282-3480 (WORK)

DATE: DECEMBER 9, 1996

Don was with the Artillery Unit from 1956 through the 1970's and with the Washington National Guard Communications Platoon Squad. He remembers there was an Italian POW Camp at Camp Bonneville. He doesn't know anything about any chemical training which may have taken place. Don said he would contact someone who was at Camp Bonneville during WWII and ask him if he knows anything about the chemical training.

**PHONE CONVERSATION**

NAME:MR. DON DAVIS (FORMERLY STATIONED AT CAMP BONNEVILLE)

PHONE: (360) 892-4066 (HOME)  
(503) 282-3480 (WORK)

DATE: DECEMBER 17, 1996

Don contacted two people who were at Camp Bonneville during WWII. Neither knew anything about the chemical training which is suspected to have taken place or of any burial sites at Camp Bonneville. One of the gentleman, a translator for the Italian Prisoners of War, arrived late into WWII.

**PERSONAL INTERVIEW**

NAME: MR. WARREN FJELDOS (PRESENTLY STATIONED AT CAMP BONNEVILLE)  
PHONE: (360) 694-3280 (WORK)

DATE: DECEMBER 9, 1996

Mr. Warren Fjeldos works with Jerry Cummings, Range Control Officer, Camp Bonneville. Jerry was unavailable to interview. The few maps that Warren had available, we had already copied. Since Warren has not been at Camp Bonneville long, he was able to tell us only what he had been told in the past. Warren also told us that all of the information that had been at Camp Bonneville was transferred to Vancouver Barracks.

Warren took us on a tour of the installation. He drove to the ranges south of the Camp Bonneville cantonment area, as far east as the sewage treatment facility, and to the 105/155 howitzer firing points. He also showed us where he was told the old gas chamber was. This is in the same location as, what is believed to be a "Gas ID" notation seen on a map earlier. Bill Graney, CENPS, had informed me that a rocket had been found near the sewage treatment facility. I asked Warren if he could show me the location. He didn't know the exact location of the rocket that was found by the sewage treatment facility. But, he believed that Jim McBane, Geologist [Environmental Engineer], CENPS, found it.

The ranges were rehabbed in the mid to late 1970's. The contractor was Pease Construction. He wasn't aware of any ordnance being found during their construction. Other construction which took place included the installation of a gas line, by Northwest Gas, through the southwest corner of the installation. Again, he is not aware of any ordnance being found during this construction.

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The following comment was received from CENWS on 6/19/97 which stated that, "The actual situation was that Mr. David Briggs, Environmental Chemical Corporation, found the rocket while doing a very rough survey of the Camp Bonneville Landfill 2 site, an identified HTW environmental investigation area, using a hand-held magnetometer. Mr. McBane was present when the discovery was made."

**PHONE CONVERSATION**

NAME: SSGT SAVY

142ND CES/CED

PHONE: (503) 335-4830/4831  
DSN---638-4830/4831

DATE: FEBRUARY 4, 1997

Hank Counts, CEMVS-ED-P (phone number 314-331-8762), contacted 142nd CES/CED National Guard EOD Unit at 6800 NE Cornfoot Road, Portland Intl. Airport, Portland, OR 97218. SSGT Savy stated that the 14.5 range was a sub-cal range for the 81mm mortar. He also stated that the unit used the demolition area for training and in the past had burned an aim-7 rocket motor at the site. The unit in years past had destroyed cad items but have not utilized the area in several years. He is also going to check the unit's records for further information. Hank is to contact him again within the week to check on the results.

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14 February 1997

As of the above date, Mr. Counts has not been able to reach SSGT Savy to obtain results from reviewing the unit's records.

NOTE: An updated Conversation Record is on page C-23.

**PHONE CONVERSATION**

NAME: (OPERATIONS NCO)

53RD ORDNANCE COMPANY (EOD)

YAKIMA, WASHINGTON

(509) 457-3376

DATE: FEBRUARY 1997

Randy Fraser, Health and Safety Specialist, St. Louis District, Corps of Engineers, contacted the 53rd Ordnance Company. The Operations NCO stated they did not

have any records or information concerning Camp Bonneville.

**PHONE CONVERSATION**

NAME: OPERATIONS NCO

3RD ORDNANCE BATTALION (EOD)

FORT LEWIS, WASHINGTON

(404) 363-7126

DATE: FEBRUARY 1997

Randy Fraser, Health and Safety Specialist, St. Louis District, Corps of Engineers, contacted the 3rd Ordnance Battalion. The Operations NCO stated they do not respond to incidents at Camp Bonneville. The 3rd Ordnance Battalion has used several areas for training, including the Demolition Range for use of "tools", ordnance recognition, C4 use, etc.

**PHONE CONVERSATION**

NAME: MR. GREG PARSONS

SAFETY SPECIALIST

U.S. ARMY CORPS OF ENGINEERS, HUNTSVILLE

HUNTSVILLE, ALABAMA

(205) 895-1589

DATE: FEBRUARY 1997

Randy Fraser, Health and Safety Specialist, St. Louis District, Corps of Engineers, contacted the Greg Parsons, who was involved with training at Camp Bonneville while being stationed at Vancouver Barracks during 1990 - 1992. Greg recalled ordnance being used "about everywhere". He did not recall any ordnance larger than a 155mm, and did not have any knowledge of the use of chemical munitions.

**PERSONAL INTERVIEW**

NAME: MR. JERRY CUMMINGS  
FACILITIES MANAGER, CAMP BONNEVILLE  
PHONE: (360) 694-3280 (WORK)  
  
DATE: MARCH 11, 1997

(LOCATIONS OF FOUND ORDNANCE AND RANGES NOT IDENTIFIED ON ANY HISTORICAL MAPS ARE ON THE MAP LOCATED AT END OF MR. JERRY CUMMINGS INTERVIEW DATED MAY 13, 1997)

Jerry Cummings has been at Camp Bonneville since 1976. He is now the Facilities Manager.

- EBS states that live artillery firing occurred at least twice a year between 1969 and 1985. However, Jerry and LTC McTaggart (Range Officer before Jerry) stated that the last full size 105mm was fired in 1968. Since then only sub-caliber rounds have been used.
- Since 1968, only 40mm Grenades and some LAW Rockets have been fired.
- In 1982/83 some kids found some 40mm grenades. A live/HE 40mm grenade was found on edge of the road by Range 5 and by the creek near Range 8, both areas are on map "Camp Bonneville Special". Have found: 105mm, 155mm, 40mm Grenades, 2.36" Rockets, 3.5" Rockets, and LAW Rockets. He also stated that what he believes was a phosphorous grenade deteriorated and detonated on its own. 4.2-inch mortars have also been found near the FBI and Combat Pistol Range.
- Canadian and British Prop Aircraft fired into the impact area in the early 1950's. Could have possibly used .30-cal and .50-cal machine guns and 20mm.
- Fired .50-cal all over Bonneville
- Also had vehicles which were used by tanks for targets. Knows of one on a .50-cal range. Most of this impact area is where the FBI Range is now. There was a tank target on TA5 near the creek and gas line. The National Guard Tank Battalion used this in the 1960's time frame. Target for these tanks in TA7 just south of the gas line.
- Training Areas were used for maneuvers, pyrotechnics (some were simulators), and practice mine fields (no designated area). There were only designated areas for live firing.
- EOD has destroyed many different items all over.
- The Air Force EOD, mostly from Portland National Airport (PDX), used to respond to incidents. They supposedly have good records that go back quite awhile. Ft. Lewis now responds. Air Force POC -- (505) 335-4831.



- He is familiar with the practice of burying powder charge bags at artillery firing points. But he doesn't know if they did it at Bonneville.
- Found alot of .30-cal spent ammunition, .30-cal clips (entire belts) in the dump by the Sewage Treatment Facility.
- Found 1903 Springfield Barrel when put in water line by the parking lot.
- Hazards - no ticks, no poisonous snakes, one cougar, black bear
- 95% of the ordnance items found have been found outside the impact area. However, they don't really go looking for UXO in the impact area.
- Land owner ¼ to ½ mile outside the east boundary claims that artillery killed his horse (date unknown). A woman north of Killpack Cantonment (north of TA12) found mortar round about 3-4 years ago. Several .50-cal found south side of Camp Bonneville
- Mortar Position just north of Range 5 has been dug up and turned.
- Demolition Area #2 has been used once since 1976
- Demolition Area #1 has been used by the Air Force and Army EOD, Police Bomb Squad, and whoever else needed it. Tons of black powder. Class C Fireworks - burned in trench and covered up when finished. Has used the trench several more times. Range Limit set at 4-lbs on Demo #1 in 1980's. This was dropped to ¼-lb in 1988. The largest item Air Force destroyed in #1 were rocket motors. They also burned rocket propellant. This was common practice for destroying rocket motors. FBI buried weapons southwest of Demo #1. They dumped acid on these, then burned.
- Doesn't recall any chemicals being buried
- Blew Claymore Mines on Demo Areas and Grenade Ranges

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A comment from Jerry Cummings dated 18 June 1997 states that, "LTC McTaggart was actually a Captain in the Oregon Nation Guard and in that capacity had used Camp Bonneville in the 1968 timeframe."

**PERSONAL INTERVIEW**

NAME: MR. JERRY CUMMINGS  
FACILITIES MANAGER, CAMP BONNEVILLE  
PHONE: (360) 694-3280 (WORK)

DATE: MAY 13, 1997

(LOCATIONS OF FOUND ORDNANCE AND RANGES NOT IDENTIFIED ON ANY HISTORICAL MAPS ARE ON THE MAP LOCATED AT END OF THIS INTERVIEW)

- Jerry verified the locations of ordnance found in the past on the installation.
- He also identified three locations not specified on any maps where personnel trained with 14.5mm. He also drew the location and safety fan for the FBI Range.
- He also sketched the approximate location of the fence which encompasses the Artillery Impact Area.
- Jerry provided names and phone numbers of two individuals, Karen Swenson and Janet Renfro, who found ordnance on their property just north of the installation. (We had spoken to them at the RAB on March 12 but were called again for additional leads and information)
- He identified an area near the sewage treatment facility which has endangered plant species.

LEGEND TO ATTACHED MAP

X (1)	DESCRIPTION OF ORDNANCE
X1	Buried 3.5-inch Practice Rockets
X2	40mm Grenades (HE) for an M203 Grenade Launcher
X3	40mm Grenades (HE) for an M203 Grenade Launcher
X4	3-inch Trench Mortar (Sandfilled) Stokes
X5	Springfield Rifle
X6	White Phosphorous Hand Grenade
X7	2.36" Rocket
X8	155mm Round

X9	105mm Round
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KEEP THIS PAGE BLANK FOR MAP TO BE INSERTED

**PHONE CONVERSATION**

NAME: MR. TED VAN ARSDOL  
417 MIAMI WAY  
VANCOUVER, WA 98664  
(360) 693-3403

DATE: MARCH 24, 1997

Received Mr. Van Arsdol's name and phone number from the Ft. Vancouver Historical Society/Clark County Historical Museum. Mr. Van Arsdol has written several articles and books on the area, including Camp Bonneville. He suggested I contact Mr. George Van Way, a retired Colonel who was stationed at Camp Bonneville in the 1930's.

Mr. George Van Way  
409 U.S. Hwy 1, #107-C  
North Palm Beach, FL 33408  
(561) 842-3299

**PHONE CONVERSATION**

NAME: MR. GEORGE VAN WAY  
409 U.S. HWY 1, #107-C  
NORTH PALM BEACH, FL 33408  
(561) 842-3299

DATE: MARCH 24, 1997

Received Mr. Van Way's name and phone number from Mr. Van Arsdol. George Van Way was stationed at Camp Bonneville between 1933 and 1936. He was with the 7th Infantry at Vancouver Barracks when he was sent to Camp Bonneville to put in all of the utilities and to use the target range. He surveyed and put in a new water system, built extra concrete pads and repaired some buildings. The range was used by Vancouver Barracks as well as the Reserves on occasion. There was no chemical training. Since the military was pretty much abandoned after the war, they had to work with only the bare essentials.

**PHONE CONVERSATION AND PERSONAL INTERVIEW**

NAMES: MS. JANET RENFRO, RAB CO-CHAIR  
MS. KAREN SWENSON (JANET'S NIECE AND RAB MEMBER)  
PHONE: (360) 693-0350 (JANET)  
(503) 460-9717 (KAREN)

DATES: MARCH 12, 1997 AND MAY 13, 1997

Jerry Cummings had provided Janet Renfro's and Karen Swenson's names and phone numbers. While at the RAB on March 12, we had spoken to them about the item they found on Karen's property. Rochelle Ross, CEMVS-ED-P contacted them for additional information and any leads.

Janet found an item on Karen Swenson's, her Niece, property north of Camp Bonneville near Little Elkhorn Mountain. It was silver colored plastic, cone-shaped and had a black tube coming from the center of it. Based only on the description and a sketch, the Safety Officer could not determine what the item was. It was buried in the ground when she came across it. After digging it up and taking it to Camp Bonneville, the item was tossed into the woods. She does not know where it is. She and Karen have not found anything else on their property or know of anyone else around the installation finding anything.

She said she would contact the Neighborhood Committee Chairperson, who would have more information and have her contact me. I asked for this person's name and number, but she would not disclose this information.

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DATE: 26 JUNE 1997

Janet Renfro was contacted again. She revealed the Neighborhood Committee Chairperson's first name but said she didn't know her phone number. Again, she would have the Chairperson, Valerie, contact me.

Since this date several messages have been left for Janet, however, the calls have not been returned. Therefore, the information the Neighborhood Committee Chairperson may have is unknown to the research team.

**PHONE CONVERSATION**

NAME: MSGT BILL ANDERSON

AIR NATIONAL GUARD, PORTLAND AIRPORT, OR

PHONE: DSN---638-5046

DATE: MARCH 31, 1997

Randy Fraser, CEMVS-ED-P (phone number 314-331-8268), called Msgt Anderson. Msgt Anderson is a former EOD Technician, and has been stationed in the Portland area for some 20 years. We discussed Camp Bonneville and the potential for UXO remaining on the installation. He and members of his unit had been there many times and he was familiar with the installation. They had used the facility for training and disposing of unserviceable ammunition for at least 15 years before operations were halted on Bonneville. Although he had been on the installation a number of times, he could recall only two incidents. This was because the Army had EOD responsibility. One incident that he could recall with details was a Stokes mortar uncovered during an excavation work on a water line. The area was described as being in the field where the picnic tables are located. The mortar was detonated and found to be sand filled. He remembers responding to at least one other UXO, but could not be sure that he recalls what or where it was, only that he thinks it had been a mortar. We discussed his units activities on the demolition range. He said that they had been using the range for about 15 years, activities included disposal of unserviceable ammunition and training. Ammunition destroyed include, but not limited to 20-mm ammunition, 2.75-inch rockets, missiles, etc. He further stated that the range had been used by everybody and anybody, to including the Army, local Fire Departments and law enforcement for training and disposal operations. Automobiles, railroad rails, and other objects were brought on to the range for explosives training. The range had been used for disposal of unserviceable ammunition, explosives, and confiscated fireworks, etc.. He also mentioned that it appeared to be used as a dump site for awhile, due to discarded appliances. The range limit established, at least during the earlier years had been established for training activities only. He knew of no range limit being enforced for disposal of unserviceable ammunition. When asked about artillery activities, his response was that no artillery had been fired on Bonneville during his tenure with EOD. He knows of only sub-caliber ammunition being used for heavy artillery training.

**PHONE CONVERSATION**

NAME: SSGT SAVY

142 CES/CED AIR NATIONAL GUARD

PORTLAND AIRPORT, OR

PHONE: DSN---638-4830

DATE: MARCH 31, 1997

Randy Fraser contacted SSGT Savy. SSGT Savy is an EOD Technician assigned to the 142 CES/CED, Portland Air National Guard. This is a follow-up call from the February 4th call placed by Hank Counts. SSGT Savy was to review his files for any additional information on Camp Bonneville. Apparently no other information was available. He did however mention briefly about the use of the Demolition range. He said that they had destroyed a bunch of 2.75 inch rockets and at least one Aim 7 missile. The rocket motors were destroyed by burning, while the warheads were destroyed by detonation. It is quite possible that unconsumed propellant may be present on the range area. He did mention that they had disposed of 20mm ammunition. This information would account for the 20mm projectiles found near the demolition range.



## **APPENDIX D**

### **PRESENT SITE PHOTOGRAPHS**

## PRESENT SITE PHOTOGRAPHS

### Page D-1

- PHOTO #1 NORTHWEST CORNER OF NORTHERN LEASED AREA  
(Facing SSE)
- PHOTO #2 NORTHEAST BOUNDARY OF INSTALLATION (Facing SW)

### Page D-2

- PHOTO #3 CENTER OF NORTHERN LEASED AREA (Facing W)
- PHOTO #4 WESTERN SIDE OF NORTHERN LEASED AREA (Facing E)

### Page D-3

- PHOTO #5 CLOSE COMBAT COURSE (Facing S)
- PHOTO #6 CLOSE COMBAT COURSE, CONTROL TOWER (Facing SW)

### Page D-4

- PHOTO #7 DEMOLITION RANGE #1 (Facing NW)
- PHOTO #8 MORTAR POSITION (Facing NE)

### Page D-5

- PHOTO #9 SUBMACHINE GUN RANGE (Facing SE)
- PHOTO #10 POSSIBLE BERM FOR PISTOL RANGE AND M60 AND  
25 METER RANGE (Facing NW)

### Page D-6

- PHOTO #11 MORTAR POSITION (Facing E)
- PHOTO #12 2.36" ROCKET (DEBRIS)

## PRESENT SITE PHOTOGRAPHS

### Page D-7

PHOTO #13 AMMUNITION STORAGE AREA; INSIDE WESTERN  
BUNKER: BLACK POWDER AND SMOKELESS POWDER

PHOTO #14 AMMUNITION STORAGE AREA; WESTERN BUNKER

### Page D-8

PHOTO #15 AMMUNITION STORAGE AREA; MIDDLE BUNKER

PHOTO #16 AMMUNITION STORAGE AREA; EASTERN BUNKER

### Page D-9

PHOTO #17 SMALL ARMS RANGE (Facing Downrange)

### Page D-10

PHOTOS #18 SMALL ARMS RANGES (Facing Downrange)  
AND #19

### Page D-11

PHOTO #20 PISTOL RANGE (Facing S)

PHOTO #21 NBC CHAMBER, BUILDING T-1834

### Page D-12

PHOTO #22 POSSIBLE GAS CHAMBER, BUILDING T-1864

PHOTO #23 LOCATION OF ARTILLERY IMPACT AREA (Facing NE)

### Page D-13

PHOTO #24 LOCATION OF ARTILLERY IMPACT AREA (Facing SE)

PHOTO #25 SMALL ARMS IMPACT AREA (Facing NW)

## **PRESENT SITE PHOTOGRAPHS**

### **Page D-14**

PHOTO #26 1000-INCH RANGE (RANGE #25 - PLATE 29) AND  
MORTAR POSITION

PHOTO #27 GAS ID AREA FROM FBI RANGE FIRING BERM

### **Page D-15**

PHOTO #28 ARTILLERY FIRING POINT IN TA11 (Facing E)

PHOTO #29 ARTILLERY FIRING POINT IN TA1 (Facing E)

### **Page D-16**

PHOTO #30 M-31 FIELD ARTILLERY RANGE, 14.5MM SUBCALIBER  
(Facing NW)

PHOTO #31 M-31 FIELD ARTILLERY RANGE, 14.5MM SUBCALIBER  
(Facing E)

### **Page D-17**

PHOTO #32 MORTAR TRAINING SHELL RANGE AND LAW,  
SUBCALIBER AND M203 PRACTICE RANGE  
(RANGE #9 - PLATE 28) (Facing S from the berm just behind  
the firing position)

PHOTO #33 RANGE #9 - PLATE 28; SMOKE GRENADE (EXPENDED)

### **Page D-18**

PHOTO #34 RANGE #9 - PLATE 28; CAP FOR PRACTICE GRENADE  
(DEBRIS)

PHOTO #35 RANGE #9 - PLATE 28; TAIL FROM LAW, SUBCALIBER,  
35MM

## PRESENT SITE PHOTOGRAPHS

### Page D-19

- PHOTO #36 RANGE #9 - PLATE 28; MORTAR, SUBCALIBER, 22MM
- PHOTO #37 M-31 FIELD ARTILLERY RANGE, 14.5MM SUBCALIBER; AT FIRING POSITION (Facing Downrange)

### Page D-20

- PHOTO #38 LIVE HAND GRENADE RANGE (Facing E)
- PHOTO #39 PRACTICE HAND GRENADE RANGE (Facing SE)

### Page D-21

- PHOTO #40 LOCATION OF RIFLE GRENADE RANGE
- PHOTO #41 WITHIN RIFLE GRENADE, ROCKET, AND 25 METER MACHINE GUN RANGE IMPACT AREA (Facing E)

### Page D-22

- PHOTO #42 BACKSTOP BERM OF 25 METER AND MACHINE GUN RANGE (Facing NNE, toward rocket range)
- PHOTO #43 BACKSTOP BERM OF 25 METER AND MACHINE GUN RANGE (Facing SW, toward firing position)

### Page D-23

- PHOTO #44 INFILTRATION COURSE
- PHOTO #45 M-31 FIELD ARTILLERY RANGE, 14.5MM SUBCALIBER (Facing NNE, uprange)

## **PRESENT SITE PHOTOGRAPHS**

### **Page D-24**

PHOTO #46    IMPACT AREA OF INFILTRATION COURSE AND 25 METER  
MACHINE GUN RANGE (Facing NNE)

PHOTO #47    IMPACT AREA OF INFILTRATION COURSE AND 25 METER  
MACHINE GUN RANGE (Facing NNE)

Locations and directions of photos are denoted on Page D-25, Photo Location Plate.

**PRESENT SITE PHOTOGRAPHS**

PHOTO #1  
NORTHWEST CORNER OF NORTHERN LEASED AREA  
(Facing SSE)

PHOTO #2  
NORTHEAST BOUNDARY OF INSTALLATION

**PRESENT SITE PHOTOGRAPHS**

(Facing SW)

PHOTO #3  
CENTER OF NORTHERN LEASED AREA  
(Facing W)

PHOTO #4



**PRESENT SITE PHOTOGRAPHS**

**WESTERN SIDE OF NORTHERN LEASED AREA  
(Facing E)**

**PHOTO #5  
CLOSE COMBAT COURSE  
(Facing S)**

**PRESENT SITE PHOTOGRAPHS**

PHOTO #6  
CLOSE COMBAT COURSE, CONTROL TOWER  
(Facing SW)

PHOTO #7  
DEMOLITION RANGE #1  
(Facing NW)

**PRESENT SITE PHOTOGRAPHS**

PHOTO #8  
MORTAR POSITION  
(Facing NE)

PHOTO #9  
SUBMACHINE GUN RANGE  
(Facing SE)

**PRESENT SITE PHOTOGRAPHS**

PHOTO #10  
POSSIBLE BERM FOR PISTOL RANGE AND M60 AND 25 METER RANGE  
(Facing NW)

PHOTO #11  
MORTAR POSITION  
(Facing E)

**PRESENT SITE PHOTOGRAPHS**

PHOTO #12  
2.36" ROCKET (DEBRIS)

PHOTO #13  
AMMUNITION STORAGE AREA; INSIDE WESTERN BUNKER: BLACK  
POWDER AND SMOKELESS POWDER

**PRESENT SITE PHOTOGRAPHS**

**PHOTO #14  
AMMUNITION STORAGE AREA; WESTERN BUNKER**

**PHOTO #15  
AMMUNITION STORAGE AREA; MIDDLE BUNKER**

**PRESENT SITE PHOTOGRAPHS**

PHOTO #16  
AMMUNITION STORAGE AREA; EASTERN BUNKER

PHOTO #17  
SMALL ARMS RANGE (Facing Downrange)

## **PRESENT SITE PHOTOGRAPHS**



**PRESENT SITE PHOTOGRAPHS**

PHOTOS #18 AND 19  
SMALL ARMS RANGES (Facing Downrange)

PHOTO #20  
PISTOL RANGE (Facing S)

**PRESENT SITE PHOTOGRAPHS**

**PHOTO #21  
NBC CHAMBER, BUILDING T-1834**

**PHOTO #22  
POSSIBLE GAS CHAMBER, BUILDING T-1836**

**PRESENT SITE PHOTOGRAPHS**

PHOTO #23  
LOCATION OF ARTILLERY IMPACT AREA  
(Facing NE)

PHOTO #24  
LOCATION OF ARTILLERY IMPACT AREA  
(Facing SE)

**PRESENT SITE PHOTOGRAPHS**

**PHOTO #25  
SMALL ARMS IMPACT AREA  
(Facing NW)**

**PHOTO #26  
1000-INCH RANGE (RANGE #25 - PLATE 29) AND MORTAR POSITION**

**PRESENT SITE PHOTOGRAPHS**

**PHOTO #27  
GAS ID AREA FROM FBI RANGE FIRING BERM**

**PHOTO #28  
ARTILLERY FIRING POINT IN TA11  
(Facing E)**

**PRESENT SITE PHOTOGRAPHS**

**PHOTO #29  
ARTILLERY FIRING POINT IN TA1  
(Facing E)**

**PHOTO #30  
M-31 FIELD ARTILLERY RANGE, 14.5MM SUBCALIBER  
(Facing NW)**

**PRESENT SITE PHOTOGRAPHS**

PHOTO #31  
M-31 FIELD ARTILLERY RANGE, 14.5MM SUBCALIBER  
(Facing E)

PHOTO #32  
MORTAR TRAINING SHELL RANGE AND LAW, SUBCALIBER  
AND M203 PRACTICE RANGE (RANGE #9 - PLATE 28)  
(Facing S from the berm just behind the firing position)

**PRESENT SITE PHOTOGRAPHS**

**PHOTO #33**

**RANGE #9 - PLATE 28; SMOKE GRENADE (EXPENDED)**

**PHOTO #34**

**RANGE #9 - PLATE 28; CAP FOR PRACTICE GRENADE (DEBRIS)**



**PRESENT SITE PHOTOGRAPHS**

**PHOTO #35**

**RANGE #9 - PLATE 28; TAIL FROM LAW, SUBCALIBER, 35MM**

**PHOTO #36**

**RANGE #9 - PLATE 28; MORTAR, SUBCALIBER, 22MM**

**PRESENT SITE PHOTOGRAPHS**

PHOTO #37  
M-31 FIELD ARTILLERY RANGE, 14.5MM SUBCALIBER;  
AT FIRING POSITION  
(Facing Downrange)

PHOTO #38  
LIVE HAND GRENADE RANGE  
(Facing E)

**PRESENT SITE PHOTOGRAPHS**

PHOTO #39  
PRACTICE HAND GRENADE RANGE  
(Facing SE)

PHOTO #40  
LOCATION OF RIFLE GRENADE RANGE

**PRESENT SITE PHOTOGRAPHS**

PHOTO #41  
WITHIN RIFLE GRENADE, ROCKET, AND 25 METER MACHINE GUN  
RANGE IMPACT AREA (Facing E)

PHOTO #42  
BACKSTOP BERM OF 25 METER AND MACHINE GUN RANGE  
(Facing NNE, toward rocket range)

**PRESENT SITE PHOTOGRAPHS**

PHOTO #43  
BACKSTOP BERM OF 25 METER AND MACHINE GUN RANGE  
(Facing SW, toward firing position)

PHOTO #44  
INFILTRATION COURSE

**PRESENT SITE PHOTOGRAPHS**

PHOTO #45  
M-31 FIELD ARTILLERY RANGE, 14.5MM SUBCALIBER  
(Facing NNE, uprange)

PHOTO #46

**PRESENT SITE PHOTOGRAPHS**

**IMPACT AREA OF INFILTRATION COURSE AND  
25 METER MACHINE GUN RANGE (Facing NNE)**

**PHOTO #47  
IMPACT AREA OF INFILTRATION COURSE AND  
25 METER MACHINE GUN RANGE (Facing NNE)**

## **APPENDIX E**

### **HISTORICAL PHOTOGRAPHS**



## HISTORICAL PHOTOGRAPHS

Historical photographs of Camps Killpack and Bonneville Cantonments are on file at Fort Lewis, Real Estate Office.

## **APPENDIX F**

### **HISTORICAL MAPS/DRAWINGS**

**(ORIGINALS ON FILE AT THE U.S. ARMY CORPS OF  
ENGINEERS, ST. LOUIS DISTRICT, CEMVS-ED-P)**

## HISTORICAL MAPS/DRAWINGS

### **Civil Conservation Corps.**

- 1958 "Topographic Map." Surveyed in 1936 and 1937, Revised August 1958 (2 sheets). Map Drawer, Real Estate Office, Fort Lewis, Tacoma, WA.

### **Directorate of Facilities Engineering.**

- 1974 "Construct Ammo Storage Facility & Increase Physical Security of Existing Bunkers, Camp Bonneville, Wash," dated 31 October 1974. Revised 9 December 1974. Map Vault, Fort Lewis, Tacoma, WA.
- 1979 "Site Plan, Color Schedules," dated 2 May 1977. Revision of original map dated 8 February 1979. Engineering Records and Information Branch, USACE, Seattle District, WA.

### **District Engineer, Seattle District.**

- 1989 "Real Estate, Camp Bonneville, Military Reservation," dated 25 April 1975. Revision of original map dated 1 November 1989. Real Estate Office, USACE, Seattle District, WA (PLATE 3).
- 1994 "Index to Outgrants," dated 4 October 1985. Revision of original map dated 4 November 1994. Real Estate Office, USACE, Seattle District, WA (PLATE 2).

### **Elcon Associates, Inc.**

- 1983a "Cantonment Plans, Upgrading Primary Electrical Distribution," dated 21 December 1983. Map completed for Seattle District, Corps of Engineers. Engineering Records and Information Branch, USACE, Seattle District, WA (PLATE 5).
- 1983b "Construction Site Plan, Upgrading Primary Electrical Distribution," dated 21 December 1983. Map completed for Seattle District, Corps of Engineers. Engineering Records and Information Branch, USACE, Seattle District, WA.
- 1983c "Upgrading Primary Electrical Distribution," dated 21 December 1983. Set of 3 maps completed for Seattle District, Corps of Engineers. Map Drawer, Real Estate Office, Fort Lewis, Tacoma, WA.

## HISTORICAL MAPS/DRAWINGS

### **54th Engineer Detachment.**

- 1991 "Camp Bonneville Special," dated February 1991. Camp Bonneville, WA (PLATE 21).

### **John Graham Company.**

- 1981a "General Site Map," dated 14 August 1979. Revision of original map dated 12 August 1981. Engineering Records and Information Branch, USACE, Seattle District, WA.
- 1981b "General Site Map," dated 14 August 1979. Revision of original map dated 12 August 1981. Map Drawer, Real Estate Office, Fort Lewis, WA.
- 1981c "Reservation Map," dated 23 November 1979. Revision of original map dated 12 August 1981. Map Drawer, Real Estate Office, Fort Lewis, Tacoma, WA (PLATE 16).

### **Johnson Braund Design Group.**

- 1987b "Local Training Area," dated 13 August 1987 (set of 14 "As Built" drawings completed for Seattle District Corps of Engineers detailing various ranges). Engineering Records and Information Branch, USACE, Seattle District, WA.
- 1987c "Range Fans - Coverages," dated 13 August 1987. Map Vault, Fort Lewis, Tacoma, WA (PLATE 17).

### **n.a.**

- 1948 Copy of Aerial Photo, dated 9 September 1948. Map Vault, Fort Lewis, Tacoma, WA.
- 1958 Site and Building Use Map. Map Drawer, Real Estate Office, Fort Lewis, Tacoma, WA.
- 1972 "Fire Plans," dated March 1972. Map Drawer, Real Estate Office, Fort Lewis, Tacoma, WA.
- 1984b Site Map and Building Lists and Drawings. File: Site Map and Bldg. Drawings. Real Estate Office, Fort Lewis, Tacoma, WA.

### **HISTORICAL MAPS/DRAWINGS**

- n.d.e "Camp Bonneville." Environmental Office, Fort Lewis, Tacoma, WA.
- n.d.f "Camp Bonneville." Excerpt taken from Appendix E, FL Reg 350-12, dated 30 March 1984 (shows TA #1 through TA #19). Map Drawer, Real Estate Office, Fort Lewis, Tacoma, WA (PLATE 19).
- n.d.g "Camp Bonneville." Real Estate Office, File: The 6th U.S. Army Real Property Utilization Report (March 1972), Fort Lewis, Tacoma, WA (PLATE 18).

#### **Office of the Post Engineer, Fort Lewis, Washington.**

- 1959 "General Grounds Maintenance, 1959 Season," dated 1 December 1958. Revision of original map dated 29 January 1959. Map Drawer, Real Estate Office, Fort Lewis, Tacoma, WA.
- n.d. "General Site Map." Map Vault, Fort Lewis, Tacoma, WA.

#### **Office of the Post Engineer, Vancouver Barracks.**

- 1945a "Building and Block Numbers," 300-500, 1100-1300, dated 23 May 1945. Record Group 270, Box 357, File 600 Camp Bonneville, National Archives-Pacific Northwest Region, Seattle, WA.
- 1945b "Building and Block Numbers," 1700-1900, 2500-2700, dated 23 May 1945. Record Group 270, Box 357, File 600 Camp Bonneville, National Archives-Pacific Northwest Region, Seattle, WA.
- 1945c "Building and Block Numbers," 2100-2300, 2900-3100, 3700-3900, dated 23 May 1945. Record Group 270, Box 357, File 600 Camp Bonneville, National Archives-Pacific Northwest Region, Seattle, WA.
- 1945d "Building and Block Numbers," 4200-4500, dated 23 May 1945. Record Group 270, Box 357, File 600 Camp Bonneville, National Archives-Pacific Northwest Region, Seattle, WA.
- 1958a "Engineer Troop Training Projects," dated 5 May 1958. Environmental Office, Fort Lewis, Tacoma, WA (PLATE 7).

## HISTORICAL MAPS/DRAWINGS

- 1958b "Site & Building Use Map," dated 1 March 1958. Map Vault, Fort Lewis, Tacoma, WA (PLATE 11).
- 1959 "Res. Boundary & Range Map." dated 31 December 1959 (2nd Revision). Map Drawer, Real Estate Office, Fort Lewis, Tacoma, WA (PLATE 13).
- 1967 "Modernization of Firing Ranges, Camp Bonneville, Wash," dated 10 April 1967. Revision of original map dated 24 August 1967. Map Vault, Fort Lewis, Tacoma, WA.

### **Post Engineer, Vancouver Barracks.**

- 1957 "1957 Timber Harvest & Reforestation," dated February 1957. From Topographic Map dated 1928. Environmental Office, Fort Lewis, Tacoma, WA (PLATE 6).
- 1958a "Bayonet Course, Qualification Course," dated 19 May 1958. Map Vault, Fort Lewis, Tacoma, WA.
- 1958b "Firing Ranges Existing & Proposed," dated 1 May 1958. Map Vault, Fort Lewis, Tacoma, WA.
- 1958c "Firing Range Sites," dated 31 December 1958. Environmental Office, Fort Lewis, Tacoma, WA (PLATE 12).
- 1958d "Live Hand Grenade Court," dated 19 May 1958. Revision of original map dated 12 June 1958. Map Vault, Fort Lewis, Tacoma, WA.
- 1958e "Mortar Training Shell Range," dated 16 May 1958. Revision of original map dated 21 May 1958. Map Vault, Fort Lewis, Tacoma, WA.
- 1958f "Practice Hand Grenade Courts," dated 19 May 1958. Revision of original map dated 12 June 1958. Map Vault, Fort Lewis, Tacoma, WA.
- 1958g "Submachine Gun Dismounted Practice Course Layout & Target

### **HISTORICAL MAPS/DRAWINGS**

- Control," dated 19 May 1958. Map Vault, Fort Lewis, Tacoma, WA.
- 1958h "Submachine Gun Dismounted Practice Course Plot Plan & Target Details," dated 12 June 1958. Map Vault, Fort Lewis, Tacoma, WA.
- 1958i "Topographical Map of Camp Bonneville Wash," dated December 1926. Revision of original map dated November 1958. File: Acquisition of Land (820 acres +/-) by State, 1 of 3. Real Estate Office, Fort Lewis, Tacoma, WA.
- 1958j "Topographical Map of Camp Bonneville Wash," dated December 1926. Revision of original map dated November 1958. Map Drawer, Real Estate Office, Fort Lewis, Tacoma, WA.
- 1960 "Camp Bonneville Reservation, Camp Bonneville & Vicinity," dated 4 January 1960. Map Vault, Fort Lewis, Tacoma, WA.

#### **2d FA Battalion, 218 Arty, Ore Arng.**

- 1972a "Range Safety Areas, Sheet No. 2, KD Range, 3.5" R.L. Range, Hand Grenade Range," dated 15 March 1972. Map Vault, Fort Lewis, Tacoma, WA.
- 1972b "Range Safety Areas, Sheet No. 2, Close Combat Range and Pistol Range," dated 15 March 1972. Map Vault, Fort Lewis, Tacoma, WA.
- 1972c "Range Safety Areas, Sheet No. 3, Night Fire Range and 25 Meter MG Range," dated 15 March 1972. Map Vault, Fort Lewis, Tacoma, WA.

#### **7th Infantry, Vancouver Barracks.**

- 1926 "Topographical Map," dated December 1926. Record Group 270, Box 357, File 600 Camp Bonneville. National Archives-Pacific Northwest Region, Seattle, WA (PLATE 9).
- 1957 "Topographical Map." From Topographic Map dated December 1926, revised February 1928, last revision dated 31 December 1957. Map Drawer, Real Estate Office, Fort Lewis, Tacoma, WA.

## **HISTORICAL MAPS/DRAWINGS**

### **30th Engineer Battalion.**

- 1970a "Topographic Map," from original Topographic Map dated December 1926, photo revised April 1970. Map Drawer, Real Estate Office, Fort Lewis, Tacoma, WA (PLATE 15).
- 1970b "Topographic Map." From original Topographic Map dated December 1926, photo revised April 1970. Engineering Records and Information Branch, USACE, Seattle District, WA (PLATE 20).
- 1970c "Topographic Map." (Showing Training Areas). From original Topographic Map dated December 1926, photo revised April 1970. Map Drawer, Real Estate Office, Fort Lewis, Tacoma, WA.
- 1970d "Topographic Map, Close Combat Course." From original Topographic Map dated December 1926, photo revised April 1970. Map Vault, Fort Lewis, Tacoma, WA (PLATE 14).

### **U.S. Army Engineer District, Portland.**

- 1943 "General Layout, Camp Bonneville A-A Range," dated 28 May 1943. Revision of original map dated 7 October 1943. Record Group 270, Box 357, File 600 Camp Bonneville, National Archives-Pacific Northwest Region, Seattle, WA (PLATE 10).

### **U.S. Army Engineer District, Seattle.**

- 1987a "Foundation Exploration," dated January 1987. Sheet 3 of 7. Engineering Records and Information Branch, USACE, Seattle District, WA.
- 1987b "Foundation Exploration," dated January 1987. Sheet 4 of 7. Engineering Records and Information Branch, USACE, Seattle District, WA.
- 1987c "Foundation Exploration," dated January 1987. Sheet 5 of 7. Engineering Records and Information Branch, USACE, Seattle District, WA.



## **HISTORICAL MAPS/DRAWINGS**

1987d "Foundation Exploration," dated January 1987. Sheet 6 of 7.  
Engineering Records and Information Branch, USACE, Seattle  
District, WA.

1987e "Foundation Exploration," dated January 1987. Sheet 7 of 7.  
Engineering Records and Information Branch, USACE, Seattle  
District, WA.

### **U.S. Army Forces Command.**

1980 "Camp Bonneville Military Reservation," dated August 1980.  
Engineering Records and Information Branch, USACE, Seattle  
District, WA.

### **U.S. Geological Survey.**

1990 "Lacamas Creek, WA," dated 1990. St. Louis Public Library, St. Louis,  
MO.

1993 "Larch Mtn., Wash," Provisional Edition dated 1986, revised map  
dated 1993. St. Louis Public Library, St. Louis, MO.

### **War Department.**

1959 "Basic Information Map - General Site Map," dated 19 July 1948.  
Revision of original map dated 31 December 1959. Map Vault,  
Fort Lewis, Tacoma, WA (PLATE 8).

1964 "Real Estate," dated 18 March 1945. Revision of original map dated  
15 January 1964. Map Drawer, Real Estate Office, Fort Lewis,  
Tacoma, WA (PLATE 4).

### **Woodward-Clyde.**

1996b "CERFA Map." BRAC Cleanup Plan Report, U.S. Army Base  
Realignment and Closure 95 Program, dated October 1996. Prepared  
for U. S Army Corps of Engineers, Seattle District. Environmental  
Office, Fort Lewis, Tacoma, WA.

## **HISTORICAL MAPS/DRAWINGS**

- n.d. "Location of Camp Bonneville Military Reservation." Environmental Baseline Survey Report, U.S. Army Base Realignment and Closure 95 Program, dated February 16, 1996. Prepared for U. S. Army Corps of Engineers, Seattle District. Environmental Office, Fort Lewis, Tacoma, WA.

## **APPENDIX G**

### **SITE SAFETY AND HEALTH PLAN/ SITE INSPECTION REPORT**

# **SITE SAFETY AND HEALTH PLAN**

# **SITE INSPECTION REPORT**

## **SITE SAFETY AND HEALTH PLAN (SSHP)**

The purpose of this site visit is to reconnoiter, document, and photograph areas on Camp Bonneville, WA suspected to be contaminated with unexploded ordnance and/or toxic chemical munitions.

PREPARED BY: Randy Fraser  
OFFICE USACE, CELMS-ED-P  
ADDRESS 1222 Spruce St. St. Louis, Mo  
PHONE (314) 331-8268  
DATE PREPARED 3-27-97

REVIEWED/APPROVED BY: Hank Counts

NOTE This SSHP is to be used only for non-intrusive site visits and must be approved by safety prior to the start of the field visit. All team members must read, and comply with the SSHP, and attend the safety briefings. The Site Safety and Health Officer (SSHO) shall ensure the Safety Briefing Checklist and the SSHP acceptance form (Appendix C) is filled out prior to the start of the site visit.

## A. SITE DESCRIPTION AND PREVIOUS INVESTIGATIONS

### 1. Site Description

a. **Size** 3,840 Acres

b. **Present Usage** (check all that apply)

☐ Military      ☐ Recreational      ☒ Other (specify)  
☐ Residential ☐ Commercial      FBI has the only active  
☐ Natural Area      ☐ Industrial      range on Bonneville  
☐ Agricultural      ☐ Landfill      \_\_\_\_\_

☐ Secured      ☐ Active      ☐ Unknown      ☒ Unsecured      ☐ Inactive

**2. Past Uses** Camp Bonneville is a sub-installation of Vancouver Barracks, which is a sub-installation of Fort Lewis, Washington. The installation was established in 1909 as a drill field and rifle range. Historically, Camp Bonneville has been used as a training camp for active U.S. Army, Army Reserve, National Guard, Marine Corps Reserve, Navy Reserve, and U.S. Coast Guard Reserve units, as well as other Department of Defense reserve personnel. Ranges include small arms, grenade, rocket, artillery, and demolition areas. As of 1968 artillery was limited to sub-caliber ammunition.

**3. Surrounding Population** (check all that apply)

☒ Rural      ☒ Residential      ☐ Urban ☐ Other (specify)  
☐ Commercial      ☐ Industrial      \_\_\_\_\_

**4. Ordnance/Explosives (OE) Potential** Ranges on Camp Bonneville include: small arms, grenade, rockets, mortars, and artillery up to and including 155-mm. Fillers include high-explosive, white phosphorous, and illumination. After 1968 artillery was limited to sub-caliber munitions. High explosive 40mm grenades have been found on and off so called practice ranges. High explosive projectiles have been found outside the artillery impact area. Range fans make up a large portion of Camp Bonneville. Additional maneuver training areas cover virtually the entire facility excluding the impact areas. Abandoned simulators have been found in these areas.

**B. DESCRIPTION OF ON-SITE ACTIVITIES** (check all that apply)

☒ Walk-through   ☒ Drive-through   ☐ Other (specify)  
☒ On-Path   ☒ On-road   \_\_\_\_\_  
☒ Off-Path   ☐ Off-road

**C. SITE PERSONNEL AND RESPONSIBILITIES**

**1. Responsibilities**

**a. Project Manager** The Corps of Engineers Project Manager (PM) is overall responsible for the site visit. He will assign a Team Leader, (most situations will be the PM). The PM will ensure that the SSHP is completed. Coordinates and executes the site visit.

**b. Site Safety and Health Officer** Individual designated to conduct safety, enforce the SSHP, conduct safety briefings, and ensure that the team leader can safely fulfill his objectives. The SSHO will maintain the safety gear, and monitor on-site operations. The SSHO is responsible for identifying, marking, and reporting any unexploded ordnance and explosives.

**2. Team Members**

<u>NAME</u>	<u>POSITION</u>	<u>ADDRESS</u>	<u>PHONE</u>
<u>Rochelle Ross</u>	<u>PM/Team Leader</u>	<u>USACE, St. Louis, MO</u>	<u>(314) 331-8784</u>
<u>Randy Fraser</u>	<u>SSHO/UXO Spec.</u>	<u>USACE, St. Louis, MO</u>	<u>(314) 331-8268</u>
<u>David Tajkowski</u>	<u>Historian</u>	<u>USACE, St. Louis, MO</u>	<u>(314) 331-8841</u>

**D. OVERALL HAZARD EVALUATION** (check one)

☐ High   ☐ Moderate   ☒ Low   ☐ Unknown



This assessment was developed using the Site Investigation Hazard Analysis and Risk Assessment Code Matrix.

**E. GENERAL PRECAUTIONS** Prior to the on-site visit, all team members are required to read this SSHP and sign the form acknowledging that they have read and will comply with it. In addition, the SSHO shall hold a brief tailgate meeting in which site specific topics regarding the days activities will be discussed. If unanticipated hazardous conditions arise, team members are to stop work, leave the immediate area and notify the SSHO. The buddy system will be enforced at all times.

**F. STANDARD OPERATION SAFETY PROCEDURES, ENGINEERING CONTROLS AND WORK PRACTICES**

- 1. Site Rules/Prohibitions** At any sign of unanticipated hazardous conditions, stop tasks, leave the immediate area and notify the SSHO. Smoking, eating and drinking allowed in designated areas only.
- 2. Material Handling Procedures** Do not handle.
- 3. Drum Handling Procedures** Do not handle.
- 4. Confined Space Entry** An area identified as a Permit Required Confined space will not be entered. All confined spaces shall be considered permit required confined spaces until the pre-entry procedures demonstrate otherwise. Confined spaces may be entered without a written permit or attendant provided the space is determined not to be a permit required confined space as specified in 29 CFR 1910.146.
- 5. Electrical Protection** Overhead power lines, downed electrical wires and buried cables pose a danger of shock and electrocution. In addition, buildings may contain exposed wiring that may hold a potential load. Workers should avoid contact with any and all exposed wire and cables
- 6. Spill Containment** N/A
- 7. Excavation Safety** Do not enter trenches/excavations.
- 8. Illumination** Site visits will be conducted during daylight hours only.

**9. Sanitation** Use existing sanitary facilities.

**10. Buddy System** Individuals will maintain constant contact with other personnel at all times. No one will work alone at any time during the site visit.

**11. Engineering Controls** N/A

**12. Insects** Wearing light colored clothing and tucking in the pant legs can reduce contact. In severely infested area it may be necessary to tape all openings. Apply repellents to both clothing and bare skin. Diethyltoluamide (DEET) is an active ingredient in many repellents, which are effective against ticks and other insects. Repellents containing DEET can be applied on exposed areas of skin and clothing. However, repellents containing permethrin should be used on only clothing. For more information on insect bites, refer to APPENDIX B of this SSHP.

**13. Poisonous Vegetation** Recognition and avoidance is the best protection. Cover all exposed skin. If it is known or suspected that an individual has been exposed, wash the effected area with soapy water.

**14. Inclement Weather** When there are warnings or indications of impending severe weather (heavy rains, strong winds, lightning, tornados, etc.), weather conditions shall be monitored and appropriate precautions taken to protect personnel and property from the effects of the severe weather.

**15. Hot Weather** In hot environments, cool drinking water shall be made available and workers shall be encouraged to frequently drink small amounts, e.g., one cup every 15 - 20 minutes; the water shall be kept reasonably cool. In those situations where heat stress may impact worker safety and health, work regimens shall be established. Environmental monitoring of the Wet Bulb Globe Temperature Index shall be conducted and work loads and work regimens categorized as specified in the American Conference of Governmental Industrial Hygienist (ACGIH) publication "Threshold Limit Values and Biological Exposure Indices". For more information on Heat Stress refer to APPENDIX A of this SSHP.

**16. Cold Weather** Cold injury (frost bite and hypothermia) and impaired ability to work are dangers at low temperatures and when the wind-chill factor

is low. To guard against them; wear appropriate clothing; have warm shelter readily available; carefully schedule work and rest periods, and monitor workers' physical conditions.

**17. Off-Road Driving** Ensure all emergency equipment is available with the vehicle, i.e., tire changing equipment. Drivers shall familiarize themselves with the procedures for engaging four-wheel drive systems before the need for added traction arises. Vehicles will not be driven into an environment that is unknown, such as deep water, or an unstable surface. Vehicles will not be driven into a suspected ordnance impact area.

## **18. Ordnance**

### **a. General Information**

**(1)** The cardinal principle to be observed involving explosives, ammunition, severe fire hazards or toxic materials is to limit the exposure to a minimum number of personnel, for the minimum amount of time, to a minimum amount of hazardous material consistent with a safe and efficient operation.

**(2)** The age or condition of an ordnance item does not decrease the effectiveness. Ordnance that has been exposed to the elements for extended periods of time become more sensitive to shock, movement, and friction, because the stability agent in the explosives may be degraded.

**(3)** When chemical agents may be present, further precautions are necessary. If the munitions item has green markings leave the area immediately, since it may contain a chemical filler.

**(4)** Consider ordnance that has been exposed to fire as extremely hazardous. Chemical and physical changes may have occurred to the contents which render it more sensitive than it was in its original state.

### **b. On-Site Instructions**

**(1)** DO NOT TOUCH or MOVE any ordnance items regardless of the markings or apparent condition.

**(2)** DO NOT conduct a site visit during an electrical storm or an approaching electrical storm. If a storm approaches during the site visit leave the site immediately and seek shelter.

**(3)** DO NOT use a radio or cellular phone in the vicinity of a suspect ordnance item.

**(4)** DO NOT walk across an area where the ground cannot be seen.

**(5)** DO NOT drive a vehicle into a suspected OE area; use clearly marked lanes.

**(6)** DO NOT carry matches, cigarettes, lighters or other flame producing devices into a OE site.

**(7)** DO NOT rely on color code for positive identification of ordnance items or their contents.

**(8)** Approach ordnance items from the side; avoid approaching from the front or rear.

**(9)** Always assume ordnance items contain a live charge until it can be determined otherwise.

**(10)** Dead vegetation and animals may indicate potential chemical contamination. If a suspect area is encountered, personnel should leave the immediate area and evaluate the situation before continuing the site visit.

**c. Specific Action Upon Locating Ordnance**

**(1)** DO NOT touch, move or jar any ordnance item, regardless of its apparent condition.

**(2)** DO NOT be misled by markings on the ordnance item stating "practice", "dummy", or "inert". Practice munitions may contain an explosive charge used for spotting the point of impact. The item may

also be mismarked.

**(3)** DO NOT roll the item over or scrape the item to read the markings.

**(4)** The location of any ordnance items found during site investigations should be clearly marked so it can be easily located and avoided.

**(5)** Reporting will be conducted in accordance with CEMVS-ED-P, Standard Operating procedure for Reporting Ordnance and Unexploded Ordnance (UXO), dated 19 January 1995.

**19. Other** (specify)

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## **G. SITE CONTROL AND COMMUNICATIONS**

**1. Site Map** Maintained on site by the PM or Safety Officer.

**2. Site Work Zones** N/A

**3. Buddy System** Individuals will maintain constant contact with other personnel at all times. No one will work alone at any time during the site visit.

### **4. Communications**

**a. On-Site** Verbal communications will be used among team members.

**b. Off-Site** Communications shall be established on every site. Communications may be established by using an cellular phone or by public or private phone which may be readily accessible. (specify below)

☒ Cellular phone

☐ Public/private phone (location\_\_\_\_\_)

☐ Other \_\_\_\_\_

**c. Emergency Signals** In the case of small groups, a verbal signal for emergencies will suffice. An emergency signal for large groups (i.e. air horn, whistle) should be incorporated at the discretion of the SSHO. (specify below)

☒ Verbal  
☐ Nonverbal (specify)\_\_\_\_\_

**H. EMERGENCY RESPONSE** Team members are to be alert to the dangers associated with the site at all times. If an unanticipated hazardous condition arises, stop work, evacuate the immediate area and notify the SSHO. A First Aid Kit and emergency eye wash (if applicable) will be located in the SSHO's field vehicle. If qualified persons (i.e. fire department, medical facility or physician) are not accessible within five minutes of the site at least two team members shall be qualified to administer first aid and CPR.

**1. Emergency/Important Telephone Numbers**

Clark County Sheriffs Department	(360) 699-2211
Hospital	(360) 256-2000
3rd Ord Bn (EOD)	(404) 363-5225
707th Ord Co (EOD)	(206) 967-5507
Huntsville Safety Office	(205) 895-1582/1579
Huntsville's 24 hour number	(800) 627-3532, PIN 777-2534
On-site cellular phone	(314) 606-4960
St. Louis Corps of Engineers	(314) 331-8036

**2. Hospital/Medical Facility Information**

Name: Southwest Washington Medical Center  
Address: 3400 Main Street  
Vancouver, WA  
Phone: (360) 256-2000

Distance to hospital: 15 to 20 miles

Route to Hospital: Refer to the Site Maps on the following pages.









## **I. MONITORING EQUIPMENT AND PROCEDURES**

**1. Exposure Monitoring** For non-intrusive on-site activities such as site visits, air monitoring is typically not required. However, if the site situation dictates the need for monitoring, complete the following information on a separate page and attach the page to the SSHP.

**a. Monitoring Equipment To Be Utilized** N/A

**b. Equipment Calibration Results** N/A

**c. Action Levels** N/A

### **2. Heat/ Cold Stress Monitoring**

**a.** Heat Stress monitoring criteria published in Chapter 8 of the NIOSH/OSHA/USCG/EPA "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities" shall be followed.

**b.** Cold Stress monitoring shall be conducted in accordance with the most current published American Conference of Governmental Industrial Hygienists (ACGIH) cold stress standard.

**J. PERSONAL PROTECTIVE EQUIPMENT** Typically, for non-intrusive site visits, Level D is required. If a higher level of protection is to be used initially or as contingency, a brief discussion will be attached. At a minimum personnel shall wear clothing suitable for the weather and work condition. The minimum for field work shall be short sleeve shirt, long trousers, and leather or other protective work shoes or boots. If a higher level of protection is to be used initially or as contingency, a brief discussion will be attached.

**1. Footwear** Footwear providing protection against puncture shall meet the applicable requirements as stated in EM 385-1-1, paragraph 05.A.07. All activities which personnel are potentially exposed to foot hazards will be identified and documented in a hazard analysis.

**2. Hand Protection** Persons involved in activities which subject the hands to injury (e.g., cuts, abrasions, punctures, burns) shall use leather gloves.

**3. Head Protection** Hardhats shall be worn when personnel are subject to

potential head injury. The identification and analysis of head hazards will be documented in a hazard analysis.

**4. Eye Protection** Personnel will wear eye protection when activities present potential injuries to the eyes. All eye protection equipment shall meet the requirements as stated in EM 385-1-1, paragraph 05.B.

**K. DECONTAMINATION PROCEDURES** Decontamination procedures are not anticipated for this site investigation. Team members are cautioned not to walk, kneel or sit on any surface with potential leaks, spills or contamination.

**L. TRAINING** All site personnel shall have completed the training required by EM 385-1-1 and 29 CFR 1910.120 (e). The U.S. Army Corps of Engineer (USACE) Project Manager shall ensure, and the SSHO shall verify, that all on-site personnel have completed appropriate training. Additionally, the SSHO shall inform personnel before entering, of any potential site-specific hazards and procedures.

**M. MEDICAL SURVEILLANCE PROGRAM** The USACE Project Manager shall ensure, and the SSHO shall verify, that all on-site personnel are on the Medical Surveillance Program meeting the requirements of 29 CFR 1910.120, and ANZI Z-88.2, as appropriate, depending on the PPE and site specific tasks.

Provide the following information on Training and Medical

<u>NAME</u>	<u>HAZWOPER DATE</u>	<u>PROVIDER</u>	<u>MEDICAL DATE</u>
<u>Rochelle Ross</u>	<u>12-96</u>	<u>Corps of Engrs.</u>	<u>01-97</u>
<u>Randy Fraser</u>	<u>01-07</u>	<u>Corps of Engrs.</u>	<u>04-07</u>
<u>David Tajkowski</u>	<u>01-97</u>	<u>Corps of Engrs</u>	<u>03-97</u>

**N. LOGS, REPORTS AND RECORDKEEPING** Site logs are maintained by the Project Manager and SSHO. This is to include historical data, personnel authorized to visit the site, all records, standard operating procedures, air monitoring logs and the SSHP.

**O. GENERAL** The number of personnel visiting the site shall be a limited to a minimum of two, maximum of eight. The more personnel on-site, the greater potential for an accident. The SSHO may modify this SSHP if site conditions warrant it and without risking the safety and health of the team members. This modification will be coordinated with the team members. The SSHO shall notify Corps of Engineers Safety Office in Huntsville, AL. of the change as the situation allows.

## APPENDIX A

### HEAT- RELATED INJURIES

Once the signals of a heat-related illness begin to appear, the victim's condition can quickly get worse. A heat related illness can result in death. If you see any of the signals of sudden illness, and the victim has been exposed to extremes of heat, suspect a heat-related illness.

People at risk for heat-related illness include those who work or exercise outdoors, elderly people, young children, and people with health problems. Also at risk are those who have had a heat-related illness in the past, those with medical conditions that cause poor blood circulation, and those who take medications to get rid of water from the body (diuretics).

People usually try to get out of extreme heat before they begin to feel ill. However, some people do not or can not. Those that work outdoors often keep working even after they begin to feel ill. Many times, they might not even recognize that they are in danger of becoming ill.

Heat cramps, heat exhaustion, and heat stroke are conditions caused by overexposure to heat. You can help prevent heat-stress emergencies by recognizing and properly treating symptoms. Below is a quick reference guide to heat-related emergencies:

**HEAT CRAMPS** Heat cramps are the least severe, and often are the first signals that the body is having trouble with the heat. *Symptoms* include: Muscle twitching; painful spasms in the legs, arms or abdomen.

#### WHAT TO DO:

- Have the individual rest in a cool place.
- Give cool water or a commercial sports drink.
- lightly stretch the muscle and gently massage the area.

**HEAT EXHAUSTION** Heat exhaustion is a more severe condition than heat cramps. *Symptoms* include: cool, moist, pale, or flushed skin, headache, nausea, dizziness, weakness, and exhaustion.

**HEAT STROKE** Heat stroke is the least common but most severe heat emergency. It most often occurs when people ignore the signals of heat exhaustion. Heat stroke develops when the body systems are overwhelmed by heat and begin to stop functioning. **Heat stroke is a serious medical emergency.** *Symptoms* include: red, hot, dry skin; changes in consciousness; rapid, weak pulse; and rapid, shallow breathing.

**WHAT TO DO:** When you recognize a heat-related illness in its early stages, you can usually reverse it.

- Get the victim out of the heat.
  - Loosen any tight clothing and apply cool, wet cloths, such as towels or sheets.
  - If the victim is conscious, give cool water to drink. Do not let the conscious victim drink too quickly. Give about 1 glass (4 ounces) of water every 15 minutes.
  - Let the victim rest in a comfortable position, and watch carefully for changes in his or her condition. The victim should not resume normal activities the same day.
- **Refusing water, vomiting, and changes in consciousness mean that the victim's condition is getting worse. Call for an ambulance immediately if you have not already done so.**
- If the victim vomits, stop giving fluids and position them on their side.
  - Watch for signals of breathing problems.
  - Keep the victim lying down and continue to cool the body any way you can. If you have ice packs or cold packs, place them on each of the victim's wrists and ankles, on the groin, in each armpit, and on the neck to cool the large blood vessels.

## **APPENDIX B**

### **BITES AND STINGS**

#### **Scorpions, Bees and Spiders**

Bee stings are painful, but rarely fatal. Some people, however have a severe allergic reaction to an insect sting. This allergic reaction may result in a breathing emergency. If someone is stung by an insect, remove the stinger. Scrape it away with from the skin with your fingernail or plastic card, such as a credit card, or use tweezers. If you use the tweezers, grasp the stinger, not the venom sac. Wash the site with soap and water. Cover it to keep it clean. Apply a cold pack to the area to reduce the pain and swelling. Watch the victim for signals of an allergic reaction.

Scorpions live in dry regions of the southwestern United States and Mexico. They live under rocks, logs, and the bark of certain trees and are most active at night. Only a few species of scorpions have a sting that can cause death.

Spiders; there are also only two spiders in the United States whose bite can make you seriously sick or be fatal. These are the black widow spider and the brown recluse. The black widow is black with a reddish hourglass shape on the underside of its body. The brown recluse is light brown with a darker brown, violin-shaped marking on the top of its body. Both spiders prefer dark, out of the way places. Often, the victim will not know that he or she has been bitten until he or she starts to feel ill or notices a bite mark or swelling.

*Symptoms:* include nausea and vomiting, difficulty breathing or swallowing, sweating and salivating much more than normal, severe pain in the sting or bite area, a mark indicating a possible bite or sting, and swelling of the area.

*First Aid:* if someone has been stung by a scorpion or bitten by a spider he or she thinks is a black widow or brown recluse, wash the wound, apply a cold pack to the site, and get medical help immediately.

#### **Lyme Disease**

Lyme Disease is an illness that people get from the bite of an infected tick. Lyme disease is affecting a growing number of people in the United States. Everyone

should take precautions against it. Not all ticks carry Lyme disease. Lyme disease is spread mainly by a type of tick that commonly attaches itself to field mice and deer. It is sometimes called a deer tick. This tick is found around beaches and in wooded and grassy areas. Like all ticks, it attaches itself to any warm-blooded animal that brushes by. Deer ticks are very tiny and difficult to see. They are much smaller than the common dog tick or wood tick. They can be as small as a poppy seed or the head of a pin. Adult deer ticks are only as large as a grape seed.

*Symptoms:* The first signal of infection may appear a few days or a few weeks after a tick bite. Typically, a rash starts as a small red area at the site of the bite. It may spread up to 7 inches across. In fair-skinned people the center is lighter in color and the outer edges are red and raised. This sometimes gives the rash a bull's-eye appearance. In dark skinned people the area may look black and blue, like a bruise.

Other symptoms include fever, headache, weakness, and joint and muscle pain similar to the pain of "flu". These symptoms might develop slowly and might not occur at the same time as a rash. In fact you can have Lyme disease without developing a rash.

*First Aid:* If you find a tick, remove it by pulling steadily and firmly. Grasp the tick with fine-tipped tweezers, as close to the skin as possible, and pull slowly. If you do not have tweezers, use glove, plastic wrap, or a piece of paper to protect you finger. If you use your bare fingers, wash your hands immediately. Do not try to burn a tick or use other home remedies, like coating the tick with Vaseline or nail polish or picking it with a pin. Once the tick is removed, wash the area with soap and water. If available, apply antiseptic or antibiotic ointment. If you can not remove the tick or parts of the tick stay in your skin, obtain medical care. If a rash or flu like symptoms develop, seek medical attention.



## APPENDIX C

### SSHP ACCEPTANCE FORM

#### ABBREVIATED SITE SAFETY AND HEALTH PLAN

I have read and agree to abide by the contents of the Site Safety and Health Plan.

<u>NAME</u>	<u>OFFICE</u>	<u>SIGNATURE</u>	<u>DATE</u>
<u>Rochelle Ross</u>	<u>CEMVS-ED-P</u>	_____	_____
<u>Randy Fraser</u>	<u>CEMVS-ED-P</u>	_____	_____
<u>David Tajkowski</u>	<u>CEMVS-ED-P</u>	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

## SITE SURVEY SAFETY BRIEFING

(Check subjects discussed)

Date\_\_\_\_\_

### GENERAL INFORMATION

- \_\_\_\_\_ Purpose of Visit
- \_\_\_\_\_ Identify Key Site Personnel

### SITE SPECIFIC INFORMATION

- \_\_\_\_\_ Site Description/Past Use
- \_\_\_\_\_ Results of Previous studies
- \_\_\_\_\_ Potential Site Hazards
- \_\_\_\_\_ OE Safety Procedures
- \_\_\_\_\_ Site SOP
- \_\_\_\_\_ Site Control and Communications
- \_\_\_\_\_ Emergency Response
  - ( ) Location of First aid Kit
  - ( ) Emergency Phone Numbers
  - ( ) Map to Facility
- \_\_\_\_\_ PPE
- \_\_\_\_\_ Weather Precautions
  - ( ) Cold/Heat
  - ( ) Severe Weather

### Safety Briefing Attendance

All team members and any accompanying personnel will be briefed and sign this form.

<u>NAME (PRINT)</u>	<u>ORGANIZATION</u>	<u>SIGNATURE</u>
Rochelle Ross	USACE-STL, Project Manager	_____

Randy Fraser                      USACE-STL, Safety Specialist                      \_\_\_\_\_

David Tajkowski                      USACE-STL, Historian                      \_\_\_\_\_

**TRIP REPORT FOR SITE INSPECTION AT CAMP BONNEVILLE, WA  
12 MAY THROUGH 15 MAY, 1997**

1. U.S. Army Corps of Engineers St. Louis District personnel, Rochelle Ross, Randy Fraser, and David Tajkowski traveled to Portland, OR on the afternoon of Monday, 12 May 1997.
2. On the morning of 13 May 1997, we met with Jerry Cummings, Warren Fjeldos, and Grady May. We discussed our plan for the week, reviewed the locations of found ordnance, located three M-31 Artillery (14.5mm subcaliber) ranges not identified on any maps, located the FBI Range, identified the approximate fence line around the artillery impact area, and received names and phone numbers of two people who found ordnance on their property.
3. We began our inspection in the southern leased area where we went to Bald Mountain and looped around. The road on the southern boundary was washed out just west of the pipeline crossing, therefore we began walking at this location. The area is covered with trees and heavy underbrush. Along the path we found several 5.56mm and 7.62mm blank casings. We also found a spoon from a practice grenade.
4. We walked through the M-31 Artillery Ranges located in TA8 and TA9 that Jerry identified earlier this morning (identified as #23, #24, and #25 on PLATE 29). About 20 to 30 yards from the road adjacent to TA9 and halfway between the road adjacent to Camp Killpack and Lackamas Creek, we located a buried landfill, approximately 20 feet in diameter. While walking through one of the three 14.5mm ranges (also identified as # 9 on PLATE 29) in TA8, we found an expended smoke grenade, a plastic cap for a 40mm practice grenade (debris), a tail from both a 35mm subcaliber rocket and a 22mm subcaliber cartridge. We continued south to another M-31 Field Artillery Range (identified as # 10 on PLATE 29) with three concrete firing positions. While walking downrange, we detected several subsurface anomalies with the magnetometer.

5. We traveled to the Grenade Ranges (Live Hand, Practice Hand, and Rifle) where we walked through the Live and Practice Ranges. We were unable to find any remnants of the Rifle Grenade Range. We traveled along a road which cuts through the Rifle Grenade Range and Rocket Range and walked into what was identified as the impact area (overgrown and heavy underbrush) of the Rifle Grenade Range. However, we didn't find any evidence of a range.
6. We continued south to the Rocket Range (identified as # 8 on PLATE 29) and 25 Meter Machine Gun Range (identified as # 37 on PLATE 30). We found remnants of lead from small arms bullets; but no remnants of a rocket range.
7. Next we went to the Infiltration Course (identified as # 26 on PLATE 30), then to the impact area of the M-31 Field Artillery Range. Within the M-31 Range, we came across what appeared to be an old homestead made out of stones.
8. After leaving the M-31 Range, we traveled through TA6, then north to the Artillery Firing Points, east to the Mortar Firing Position (identified as # 6 on PLATE 29) and Pistol Range (identified as # 39 on PLATE 30) located within TA12, and Submachine Gun Range (identified as # 29 on PLATE 30) located within TA13. The only remnants of the Pistol Range is what appeared to be a man-made berm, currently covered with small trees. We found expended blank 5.56mm and 7.62mm casings, and unidentified blank cartridges similar in size to the 5.56mm, possibly foreign, within the Submachine Gun Range. Before finishing up for the day, we went through the Bonneville Cantonment area and located the two gas chambers.
9. The evening of 13 May 1997, phone calls were made to Karen Swensen and Janet Renfro. Janet had found a possible ordnance item on Karen's property north of the installation near Little Elkhorn Mountain. The summary of this interview is located in APPENDIX C.
10. We continued the site inspection on Wednesday 14 May at the Demolition Range Number 1. The bridge across the creek south of this range is not safe to drive on, therefore we began walking at this point. We walked through the demo range and found ordnance and other types (vehicle) of debris. Ordnance debris included time fuzes, small arms, rifle grenades, grenade spoons, etc.
11. East of the demo range, we found the location of the Close Combat Course (identified as # 34 on PLATE 30). The control tower (building number appeared to be T-1886) had collapsed. We didn't come across any ordnance within the range area.

12. We continued to the northern leased area where we walked north along the western boundary, east along the northern boundary, then south and west through the area to the point of beginning. The roads identified on the map are more like paths and the area off of these paths is dense forest with extremely thick underbrush. The area is also very steep and rocky in some locations.

13. We traveled west to the mortar position in TA13 adjacent to the Submachine Gun Range. We next stopped at the Ammunition Storage Area. Located within the storage area are three bunkers. The western bunker is locked and contents inside consist of black powder and rifle powder (smokeless). The other two bunkers are open and empty. After leaving the storage area, we went to the Sewage Treatment Facility where a 2.36" Rocket was found and destroyed by Army EOD. The debris which remains consists of the tail section.

14. We went to the small arms ranges firing positions south of the Sewage Treatment Facility and east of Bonneville Cantonment and continued on into the small arms impact area. We traveled to the location where the stokes mortar was found and destroyed in the 1980's, the mortar position south of the Bonneville Cantonment, and the FBI Range. Expended tear gas grenades and 40mm, as well as small arms casings, were found scattered on the FBI Range. From the backstop of the FBI Range we looked for the "Gas ID" area identified on one of the historical maps. We didn't find anything that resembled an area that would have been used for gas training.

15. We again tried to locate the Rifle Grenade Range. This time, we walked into the woods from the north and west instead of the south. Again, we didn't find any remnants of this range.

16. After trying to locate the Demolition Area No. 2, (we were told in March this range was under water) we completed the site inspection at the entrance to the Artillery Impact Area.

17. We didn't come across any unexploded ordnance. In addition to OE items already identified, 5.56mm and 7.62mm blank cartridges were found throughout most of the installation. However, like the majority of the installation, it is covered with heavy underbrush and trees, and therefore, is extremely hard to see the ground.

Rochelle Ross  
Project Manager

Randy Fraser  
Safety Officer and UXO Specialist

David Tajkowski  
Historian

## **APPENDIX H**

### **ORDNANCE DATA SHEETS**

## ORDNANCE DATA SHEETS

Ordnance and Explosive (OE) items identified represent typical munitions common to the training conducted at Camp Bonneville. The intent is to include the most likely, and in some cases the most hazardous items which may still be present. This representation may or may not include all ammunition that has been used on Camp Bonneville. An enormous amount of ammunition has been available and used for training during the camp's existence. In addition, little or no historical documentation exists to show what types of ammunition were used. Additional information may be obtained by referring to references cited at the bottom of the data sheets.

### Small Arms, General

Shell, Shotgun, 12 Gage  
Cartridge, 14.5-mm, Trainer-Spotter, M183A1  
Shell, Fixed, 37-mm, HE, MKII  
Shell, Fixed, HE, 37-mm, M54 with Self Destruct Tracer  
Shell, 37-mm, Fixed, HE, M54  
Shot, AP, 37-mm, M74 with Tracer  
Shot, Fixed, APC, 37-mm, M59  
Projectile, Practice, 37-mm, M55A1  
Cartridge, 37-mm, TP, M63 MOD 1  
Cartridge, AP-T, 40-mm, M 81  
Projectile, 40-mm, HE, HE-I, Mk 2  
Cartridge, 40-mm, Practice, M382  
Cartridge, 40-mm, Practice, M385  
Cartridge, 40-mm, HE, M406  
Cartridge, 40-mm, Practice, M781  
Shell, 75-mm, High Explosive, M48  
Cartridge, 75-mm, HE, M309A1 Recoilless Rifle  
Shell, Fixed, HE, 3-Inch, MK IX  
Shell, Fixed, 3-Inch, HE, M42 and M42A1  
Shell, Fixed, Practice, 3-Inch, M42B2  
Shot, Fixed, AP, 3-Inch, M79  
Cartridge, 105-mm, HE, M1  
Cartridge, 105-mm, TP-T, M67  
Cartridge, 105-mm, HEAT-T, M622  
Cartridge, 105-mm, Illuminating, M314A3



## ORDNANCE DATA SHEETS

Cartridge, 105-mm, Smoke, WP, M60, M60A1, M60A2  
Projectile, 155-mm, AP, M112  
Projectile, 155-mm, HE, Mk I, Mk IA1  
Projectile, 155-mm, Smoke, WP, M110 and M110E1  
Projectile, 155-mm, HE, M107  
Projectile, 155-mm, Illum, M118 Series  
Propelling Charge, 155-mm, M3 Series  
Propelling Charge, 155-mm, M4 Series  
Mortar, 60-mm, HE, M49A2  
Cartridge, 60-mm, Illuminating, M83A3, M83A2 and M83A1  
Cartridge, 60-mm, Training, M69  
Cartridge, 60-mm, SABOT M3, 22-mm Sub-caliber Practice Cartridge M744, M745, M746 and M747  
Shell, 81-mm, HE and Practice, M43A1  
Cartridge, 81-mm, Smoke, WP, M370  
Cartridge, 81-mm, Illuminating, M301A2 and M301A1  
Cartridge, 81-mm, Illum, M301A3  
Cartridge, 81-mm, SABOT, M1, 22-mm Sub-caliber Practice Cartridge M744, M745, M746 and M747  
Cartridge, 81-mm, Training, M68  
Trench Mortar, HE, 3-Inch, MK I, MK II and Practice MK III  
Cartridge, 4.2-Inch, Illum, M335A2  
Cartridge, 4.2-Inch, HE, M3A1 and M3  
Mortar, 4.2-Inch, Smoke, WP, M328  
Cartridge, 4.2-Inch, Smoke, PWP or WP, M2A1 and M2  
Rocket, 2.36-Inch Anti-tank, M6A1, Practice, M7  
Rocket Motor, 2.75-Inch, MK40 Mod 7  
Rocket, HEAT, 3.5-Inch, M28  
Rocket, Practice, 3.5-Inch, M29  
Rocket, HEAT, 66-mm, M72, A1, A2 and A3  
Rocket, Sub-caliber, 35-mm, M73  
Missile, Aim-7E3, Aim-7F/M, Sparrow  
Grenade, Fragmentation, Delay, M26A1 and M26  
Grenade, Fragmentation, Delay, M33  
Grenade, Fragmentation, Delay, Mk II and Mk IIA1  
Grenade, Hand, Training, Mk IA1  
Rifle Grenade, Smoke, WP, M19A1

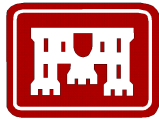
## ORDNANCE DATA SHEETS

Rifle Grenade, Smoke, M22  
Grenade, Rifle Practice, M11A2  
Anti-Tank Rifle Grenade, M9A1  
Rifle Grenade, Fragmentation, M17  
Grenade, Smoke, WP, M15  
Grenade, Hand, Tear, CN, M7 and M7A1  
Grenade, Smoke, M18 with fuze, M201, M201A1  
Grenade, Smoke, HC, AN-M8  
Mine, Anti-personal, Practice, M68  
Mine, Anti-Tank, M7A1  
Mine, Anti-Tank, M1A1  
Signals, Illum, Ground, Parachute, Red Star, M126A1; White Star, M127A1; Green Star, M195  
Simulator, Projectile, Ground Burst, M115A2  
Simulator, Hand Grenade, M116A1  
Simulator, Boobytrap, Flash, M117; Illuminating, M118; Whistling, M119  
Chemical Agent Identification Set (CAIS): Set, Gas Identification, Detonation, M1

**APPENDIX I**  
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U.S. DEPARTMENT OF DEFENSE PROGRAM

BASE REALIGNMENT AND CLOSURE

ORDNANCE, AMMUNITION AND EXPLOSIVES

**FINAL**

**ARCHIVES SEARCH REPORT**

**REPORT PLATES**

**CAMP BONNEVILLE**

CLARK COUNTY, WASHINGTON

JULY 1997

## **REPORT PLATES**

## REPORT PLATES

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8	HISTORICAL MAP - DECEMBER 1959
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